



SOUTHERN RHODESIA.

REPORT

ON

The Public Health

For the Year 1930.



**Presented to the Legislative Assembly,
1931.**

Salisbury, Rhodesia :
Printed by the Government Printer.



No.

377

TELEGRAPHIC ADDRESS

"MEDICUS."

In referring to this correspondence please
quote number.

Public Health Department,

SALISBURY,

SOUTHERN RHODESIA.

23rd March, 1931.

A.G. Bagshawe Esq., C.M.G., M.P., D.P.H.,
Bureau of Hygiene and Tropical Disease,
Keppel Street, Gower Street,
LONDON W. C. 1.

Dear Dr. Bagshawe,

I enclose herewith a copy of
my Annual Report for the year 1930.

Yours sincerely,

R. R. Tucker



CONTENTS.

PAGE

CHAPTER I.—INTRODUCTORY	1
--------------------------------	---

CHAPTER II.—THE PUBLIC HEALTH OF SOUTHERN RHODESIA: VITAL STATISTICS.

(1) Climate and Topography	1
(2) Population	2
(3) Births	2
(4) Deaths	3
(5) Infant Mortality	5
(6) Maternal Mortality	5

CHAPTER III.—INFECTIOUS AND COMMUNICABLE DISEASES.

(1) Notification	6
(2) Pneumonia and Bronchitis	6
(3) Malaria	7 ✓
(4) Leprosy	8
(5) Small-pox	10
(6) Tuberculosis	11
(7) Helminthic Diseases	12
(8) Venereal Diseases	13
(9) Diphtheria	13
(10) Typhoid Fever	14
(11) Cerebro-spinal Meningitis	14
(12) Whooping Cough, Measles, Scarlet Fever, Chicken- pox and German Measles	14
(13) Influenza	14
(14) Yaws	14
(15) Pseudo-typhus Fever	14
(16) Trypanosomiasis	15
(17) Undulant Fever	15
(18) Plague, Rabies, Typhus Fever	15

CHAPTER IV.—GENERAL.

(1) Maternity and Child Welfare	15
(2) Town Planning	18
(3) The Health of the Native	19
(4) Legislation	22
(5) Nursing Facilities for Private Patients	22


CHAPTER V.—HOSPITALS	23
-----------------------------	----

CHAPTER VI.—ADMINISTRATIVE.

(1) Staff	25
(2) Finance	26
(3) Southern Rhodesia Nursing Service	26
(4) School Medical Service	27
(5) Laboratories	28
(6) Police	29
(7) Inspection of Labour on Mines and Works	29
(8) Medical Council	29
(9) Habit-forming Drugs	30

APPENDIX.

(1) Report of Director, Public Health Laboratory	31
(2) Report of Research Fellow	35
Tables I. to IV.	37



Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

<https://archive.org/details/b31477653>



SOUTHERN RHODESIA.

Report on the Public Health for the Year 1930.

Presented to the Legislative Assembly,
1931.

I have the honour to submit my annual report for the year 1930.

CHAPTER I.—INTRODUCTORY.

Some of the more important points concerning the public health which have been under consideration by the Government during the year are as follows:—

(1) The need for improvements in the hospital accommodation at Salisbury, Gwelo and Bulawayo.

(2) The epidemic occurrence of small-pox, which has been prevalent in the Colony during the last three years, and the need for additional preventive measures against this disease.

(3) The need for further legislation for the registration and supervision of nurses and midwives; and also for the supervision of nursing homes and maternity homes.

(4) The need for measures to improve the methods of planning new townships, with a view to ensuring convenience, economy and efficiency in the design of areas to be laid out for building purposes.

(5) The need for general educative measures and publicity in regard to matters of health, including maternity and child welfare.

(6) The need for further measures for the prevention and control of malaria.

(7) The need for an extended scheme for dealing with leprosy, having in view the ultimate object of eliminating this disease from the Colony.

(8) Better facilities for dealing with diseases, including infectious diseases, among natives.

In 1930 the European population of Southern Rhodesia had a satisfactory standardised death rate (death rate brought to the standard usually employed for the purpose of international comparisons), a very low infant mortality rate (deaths of children under one year of age), and a high maternal mortality rate (deaths of mothers in child-birth).

CHAPTER II.—THE PUBLIC HEALTH OF SOUTHERN RHODESIA.

VITAL STATISTICS.

(1) Climate and Topography.

The area of Southern Rhodesia is approximately 151,000 square miles, extending from latitude 15° 36' S. to latitude 22° 25' S., and is thus situated geographically within the tropics. The climate, however, is exceedingly healthy and pleasant for European races owing to the following reasons:—



(1) *Altitude*.—Approximately 24 per cent. of the country is over 4,000 feet above sea level, and only a small proportion is below 2,000 feet.

(2) *Temperature*.—The mean annual temperature of the central plateau is 66° F. Consequently this area is properly classified as having a temperate climate, while that of the remainder of the country might be termed sub-tropical.

(3) *Equability*.—Extremes of heat and cold are normally absent. The mean monthly temperature at Salisbury during the hottest month, October, was 69.8° F. in 1930, and that of the coldest month, July, 54.7° F.

(4) *Humidity*.—The climate is dry and bracing, partly owing to the fact that the greater portion of the mean annual rainfall of 28.8 inches falls in heavy showers during only six months of the year, from November to April.

(5) *Sunshine*.—Southern Rhodesia enjoys a large amount of sunshine. In July, 1930, the number of hours of sunshine in Salisbury was 92.6 per cent. of the maximum number of hours possible; while in January, the month with the least sunshine, the number of hours was 43.3 per cent. of the maximum possible.

The above facts are reflected in the satisfactory standardised death rate, the low infant mortality rate, and the excellent condition of the health of the children in the Southern Rhodesia schools, the majority of whom have lived all their life in the Colony.

(2) Population.

The registration of European births and deaths has been in force in Southern Rhodesia since 1904 and a European census is taken every five years, thus enabling accurate information to be supplied as to the health of this section of the community. Although no census of natives has yet been taken, the native population can be estimated with considerable accuracy from the returns made by the Native Commissioners.

The population as at 30th of June, 1930, is estimated by the Government Statistician as follows:—

European	48,400
Asiatic and Coloured	4,000
Native	1,040,000
Total	1,092,400

The growth of the European population is shown by the following:—

	European population.
1901 census	11,032
1921 census	33,620
1926 census	39,174
1930 (estimated)	48,400

The rapid increase in the European population is due to:—(1) Immigration, which is still probably the most important factor. The gross number of immigrants in 1930 was 3,370, but the net European immigration is estimated at only about 1,120. (2) A high birth rate combined with a low death rate. There were 730 more births than deaths in 1930, giving the high rate of natural increase of 15.08 per 1,000 of population.

(3) Births.

There were 1,173 European births in 1930, corresponding to an annual birth rate of 24.24 per 1,000 of the European population. Of these 26 were illegitimate. The birth rates for recent years are given below and compared with those of the Union of South Africa and of England and Wales.

European Birth Rates, 1920-30.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1920-24 (average)	26	28	21
1925	23	27	18
1926	24	26	18
1927	24	26	17
1928	25	26	17
1929	24	26	16
1930	24	Not available.	16

The birth rate in Southern Rhodesia is thus a little lower than that of the Union of South Africa and much higher than that of England and Wales.

In comparing Southern Rhodesia with England and Wales it must be borne in mind that the population of the Colony favours a high birth rate in that it contains a greater proportion of persons of child-bearing ages. It is, however, interesting to note that although the birth rate of Southern Rhodesia has fallen somewhat since the year 1920, the decrease of 10 per cent. has not been nearly so marked as that in England and Wales, viz., 36 per cent. In the interests of the Colony it is to be hoped that this satisfactory birth rate will be continued in Southern Rhodesia in future years.

(4) Deaths.

A. Number of Deaths.—There were 443 European deaths in 1930, corresponding to an annual death rate of 9.15 per 1,000 of the European population.

The crude death rate for Southern Rhodesia for the last eleven years is given below, i.e., the death rate unaltered in any way. In comparing the healthiness of different countries an alteration must be made to allow for differences in the age and sex distribution of the population. Southern Rhodesia has, compared to England, a relatively large number of young and middle-aged adults, favouring a low death rate, and a greater number of males than females, which favours a high death rate, seeing that at nearly all ages males have a higher death rate than females.

If the death rates are brought to one of the standards usually employed in international comparisons—that of the population of England and Wales in 1901—Southern Rhodesia will be seen to have nearly the same standardised death rate as the Union of South Africa and as England and Wales, there being only a fraction in the differences of the average rates for the ten years 1920-29.

EUROPEAN DEATH RATES, 1920-30.

	Crude death rate, Southern Rhodesia.	Standardised death rates.		
		Southern Rhodesia.	Union of South Africa.	England and Wales.
1920-24... .. (average)	9.5	11.6	11.0	11.2
1925	9.6	10.7	10.2	10.7
1926	8.8	9.3	10.3	10.1
1927	9.1	10.3	10.3	10.6
1928	10.7	11.2	10.7	9.9
1929	10.1	11.2	10.0	11.5 ✓
1930	9.2	10.0	Not available	Not available

B. The Causes of European Deaths.—The following table shows the causes of European deaths in Southern Rhodesia during the last five years. The causes of all European deaths in 1930 are detailed in Table I. at the end of this report.

CAUSES OF EUROPEAN DEATHS, 1926-30.

Name of disease.	1926.	1927.	1928.	1929.	1930.	Totals.	Percentage of total deaths.
1. Pneumonia and bronchitis ...	36	40	58	36	50	220	10.41
2. Violence (all forms) ...	32	37	40	45	44	198	9.37
3. Cancer ...	31	36	42	32	52	193	9.13
4. Malaria and blackwater fever ...	35	30	38	42	28	173	8.18
5. Heart diseases ...	25	31	24	43	39	162	7.66
6. Nervous diseases ...	20	29	31	27	23	130	6.15
7. Premature birth and diseases of early infancy	19	15	32	26	23	115	5.44
8. Tuberculosis (all forms)...	19	19	23	16	19	96	4.54
9. Diarrhœa and enteritis ...	7	10	15	17	16	65	3.07
10. Influenza ...	16	9	12	15	11	63	2.98
11. Old age ...	8	8	8	11	10	45	2.13
12. Enteric fever ...	6	6	8	13	6	39	1.84
13. Dysentery ...	3	7	10	3	8	31	1.47
14. Diphtheria ...	2	3	3	5	3	16	.76
15. Whooping cough ...	3	...	4	6	2	15	.71
16. Measles ...	3	1	1	1	...	6	.28
17. Scarlet fever ...	...	...	...	...	...	...	...
18. Other causes ...	83	96	128	131	109	547	25.88
Totals ...	348	377	477	469	443	2,114	100.00

1. *Pneumonia and Bronchitis*, as would be anticipated, constitute the highest cause of death. In countries with a normal age distribution heart disease is commonly the principal cause of death, pneumonia and bronchitis coming second. Owing to the young age distribution of the population of Southern Rhodesia, heart disease comes lower down. Pneumonia and bronchitis are most frequent in years when influenza is epidemic, and their incidence is largely affected by that disease.

2. *Violence (all forms)*.—It is not unnatural that deaths from external causes should be somewhat high in a country still in the active stages of development, although this figure is regrettable. Of the 44 deaths in 1930 due to this cause, 11, or one-quarter, were the result of accidental injury in road or other form of transport (9 motor, 2 railway). This figure is too high. The intensive “safety first” campaigns carried out in more populous countries have had unquestionably good effects in reducing the number of motor accidents and are worthy of imitation, especially in the towns of Southern Rhodesia. Other aspects of this problem will be considered under the section dealing with town planning.

3. *Cancer*.—The high mortality from cancer is similar to that known to be universally prevalent amongst civilised communities. Recent investigations have shown that numbers of cancer cases first come under review by a medical man many months after the patient has been aware of some unidentified abnormality. It cannot be too strongly emphasised that the prospects of cure of cancer depend upon the earliness of treatment, and persons of middle age and onwards are earnestly warned to seek medical advice in regard to suspicious ailments, even if they appear at the time to be possibly trivial.

4. *Malaria and Blackwater Fever* formed the fourth highest cause of European deaths in Southern Rhodesia during the last five years, being responsible for over 8 per cent. of all deaths, including in that period 24 deaths of babies under one year of age. This disease is further discussed under the section dealing with malaria (Chapter III., 3).

5. *Heart Disease*.—The relatively small number of deaths from heart disease is explained under the paragraph above dealing with pneumonia and bronchitis.

Tuberculosis (all forms).—In England and Wales tuberculosis constitutes the fifth highest cause of death, being responsible in 1929 for 7.1 per cent. of all deaths in that country. In Southern Rhodesia it comes eighth on the list, and in the last five years caused only 4.5 per cent. of the total European deaths. This fact is in agreement with other reasons for regarding Southern Rhodesia as being in an excellent position in regard to tubercular disease.

Whooping Cough and Scarlet Fever.—While whooping cough constitutes a grave ailment responsible for a number of deaths amongst young children, it is interesting to note that scarlet fever, though often prevalent, is now of so mild a type that it has caused no death in the last five years.

(5) Infant Mortality.

There were 53 deaths of European infants under one year of age, corresponding to an annual infant mortality rate of 45.2 per 1,000 live births. The infant mortality rates for recent years are given below and compared with those of the Union of South Africa and of England and Wales.

EUROPEAN INFANT MORTALITY RATES, 1920-30.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1920-24 (average)	68	78	77
1925	77	68	75
1926	49	65	70
1927	47	71	70
1928	73	71	65
1929	67	64	74
1930	45	Not available.	60

It is satisfactory to note that the infant mortality rate of Southern Rhodesia is definitely lower than that of either the Union of South Africa or England and Wales. The average rates for the three countries during the 10 years 1920 to 1929 were:—Southern Rhodesia, 65; the Union of South Africa, 73; England and Wales, 74.

The infant mortality rate is regarded as the best single index of the social welfare of a country. It is, therefore, a matter of further congratulation that in the year 1930 the rate for Southern Rhodesia fell to the record low figure of 45. It is noted that in 1930 there was only 1 infant death from malaria, as against 9 in the year 1929. Although it is satisfactory to report the low infant death rate in the Colony, it must be clearly pointed out that this rate is still too high and can be brought lower. It is possible to prevent many of the ailments which constitute the principal causes of our infant mortality, *e.g.*, congenital defects, diarrhoea and malaria. This matter is further discussed in the section dealing with Maternity and Child Welfare (Chapter IV., 1).

(6) Maternal Mortality.

There were 7 deaths of European mothers due to pregnancy and childbirth during 1930, corresponding to a maternal mortality rate of 6 per 1,000 live births. This is a high rate of maternal mortality. The maternal mortality rates for recent years are given below and compared with those of the Union of South Africa and of England and Wales.

EUROPEAN MATERNAL MORTALITY RATES, 1920-30.

	Southern Rhodesia.	Union of South Africa.	England and Wales.
1920-24 (average)	5.0	4.8	4.0
1925	6.9	5.6	4.1
1926	6.4	4.6	4.1
1927	3.0	4.8	4.1
1928	5.5	5.0	4.4
1929	4.6	5.3	4.3
1930	6.0	Not available.	

It will be seen that the maternal mortality rate of Southern Rhodesia is almost the same as that of the Union of South Africa, just a fraction lower on the 10 years' average. On the other hand, it is definitely above that of England and Wales, being 5.1 on the average for 10 years, as against 4.1 for the same period in England and Wales. Further, there is no indication of any decrease in this rate, and in 1930 it rose to 6 per 1,000 births.

The scattered distribution of the population in Southern Rhodesia places the country at some disadvantage in regard to maternal mortality when compared with England and Wales, in that medical attention is of necessity less accessible. It may, however, be pointed out that the lower rate which exists in England and Wales is regarded as too high and as largely preventable, and that extensive measures are being adopted in that country to reduce it. See under Maternity and Child Welfare (Chapter IV., 1).

CHAPTER III.—INFECTIOUS AND COMMUNICABLE DISEASES.

1. Notification.

Notification of the more important infectious diseases is obligatory under the "Public Health Act, 1924," but is very incomplete. The following figures are taken from various returns, and though not representing the full number of cases, are of interest as giving an idea of the infectious diseases prevalent, especially among the European population. The figures as to European deaths are complete.

INFECTIOUS DISEASES, 1930.

Name of disease.	European cases.	European deaths.	Native cases.	Total cases.
1. Scarlet fever	117	...	...	117
2. Chicken-pox	96	...	284	380
3. Influenza	88	11	78	166
4. Whooping cough	71	2	1	72
5. Typhoid fever	42	6	13	55
6. Para-typhoid fever	3	...	...	3
7. Diphtheria	30	3	1	31
8. Measles	29	...	11	40
9. Rubella (German measles)	10	...	5	15
10. Cerebro-spinal meningitis	7	...	76	83
11. Acute poliomyelitis	6	...	1	7
12. Mumps	5	...	2	7
13. Erysipelas	4	1	...	4
14. Undulant fever (Malta fever)	2	1	1	3
15. Trypanosomiasis ... ..	...	...	2	2
16. Small-pox	3	...	694	697

In addition to the above, European deaths were registered from the following grave infective diseases, of which there is no record as to the number of cases:—

	European deaths, 1930.
(1) Malaria, 14; blackwater fever, 14	28
(2) Tuberculosis—respiratory, 15; other forms, 4 ...	19
(3) Dysentery	8
(4) Typhus	1

2. Pneumonia and Bronchitis.

Pneumonia and bronchitis are responsible for the highest mortality among both Europeans and natives, and caused 50, or approximately one-ninth of the total European deaths in 1930.

The following numbers of cases and deaths of natives from pneumonia were reported during the year from Mine and Government hospitals. The figures for the two types of hospital are almost, but not quite, mutually exclusive:—

	Cases.	Deaths.
Mine hospitals	1,896	377
Government hospitals	739	283
	<hr/> 2,635	<hr/> 660

Widespread throughout the world, pneumonia constitutes one of the most difficult problems of preventive medicine. Its incidence is affected by epidemics of influenza, which modern transport has rendered rapidly transmissible over vast areas. The high mortality among natives may be due partly to a lower resistance than that which the white man has acquired from long contact with the disease. All types of debilitating ailments, especially those of a chronic character, seem to increase susceptibility to pneumonia.

3. Malaria.

There were registered 14 European deaths from malaria in 1930 and 14 from blackwater fever, being a total of 28, as against 42 in the year 1929. It is probable that the number of deaths credited to malaria is an under-statement. In 1930 the average rainfall was 26 inches, while in 1929 it was 34 inches.

In Southern Rhodesia malaria and blackwater fever are third highest in the list of diseases causing European deaths, for 8 per cent. of which they are together responsible, including 8 per cent. of the deaths of European babies under one year of age. As a cause of death they are surpassed only by pneumonia and cancer among diseases. Further, malaria is responsible for debilitating illness of a prolonged character which involves economic loss to the European community. It is therefore desirable to review briefly the general position of what constitutes one of the most important health problems of the world. It may be stated there are two main views held to-day in regard to the prevention of malaria.

(1) That the adoption of measures against the larvæ and adult stages of the anopheline mosquito is sufficient to eradicate the disease.

(2) Others have pointed out more recently that during the thirty-three years which have elapsed since the mosquito was shown to be the carrier of malaria the disease has decreased but little, if at all, in spite of the large amount of work which has been carried out during that period; that malaria has been eradicated by anti-mosquito measures only in limited areas where financial resources are available for a large initial output, combined with a large annual expenditure on upkeep, and also where strict discipline can be enforced by constant skilled supervision—conditions which exist, for example, in areas controlled by large commercial firms such as mining companies.

These views have been brought into prominence by the health section of the League of Nations, and have been strongly advocated by leading malariologists for the conditions pertaining to the Southern African continent. The position in regard to malaria has also been modified by the proof of the extended flight range of mosquitoes and the knowledge that prophylactic quinine, though valuable in its faculty of keeping the disease under, does not prevent infection by the malaria parasite.

It has been further pointed out that malaria has diminished and often disappeared entirely from regions of the world without the adoption of direct anti-mosquito measures, by simply improving the conditions of life (“bonification”), especially in regard to housing, medical care, agriculture and civilisation generally; and that this has been effected even under conditions which have increased instead of diminishing the anopheline content of the area (“anophelism without malaria”).

While these views may at first sight appear to be antagonistic, it is possible that in reality they are not so, at any rate as far as the conditions existing in Southern Rhodesia are concerned. Without relying solely upon one measure, or endeavouring to enforce it to an extent which experience in other parts of the world has shown to be impossible, there is no doubt that measures against the mosquito, both in the aquatic larval phase and in its adult form, should be adopted to the utmost extent, especially in townships, mines and around farm areas. At the same time, the process of bonification, including the provision of medical facilities, should be extended as rapidly as is possible. The process of bonification has already to a very great extent removed malaria from certain municipalities of Southern Rhodesia where the disease was originally common. Malaria to-day is chiefly a rural disease in this country, and as such it is a matter for urgent and serious consideration.

An essential aspect of the problem is the native. The anopheline must derive her infecting parasites from a human being, and this in many instances is an apparently healthy native. The majority of the native population is attacked by malaria in childhood, and large numbers of their babies perish from it. Many of the survivors acquire a considerable degree of immunity to the disease, but carry organisms capable of causing infection. Any measure, therefore, which reduces the extent of malaria among the natives, or prevents the infected native from coming into contact with white persons in the presence of anopheline mosquitoes, will reduce this disease among the European population.

In countries where malaria is normally endemic the disease is liable from time to time to develop into highly virulent epidemics, concerning the biology of which we know but little at present. Epidemics of this kind occurred in Kenya Colony in 1926 and again in 1928. In 1929, and again in 1930, epidemics occurred in the Natal-Zululand area, and were responsible for a known loss of 2,758 and 1,653 lives respectively. It is interesting to note that in Natal the disease was shown to have been carried by native workers to places at a considerable altitude. It must be pointed out that the conditions favouring the spread of malaria in Southern Rhodesia are not dissimilar to those existing in the regions both north and south of the Colony, and that the same mosquitoes, *Anopheles gambiae* (formerly *costalis*) and *A. funestus*, are the common vectors in each case. It would be unwise, therefore, to regard our present immunity from these destructive epidemics as forming a guarantee of future security.

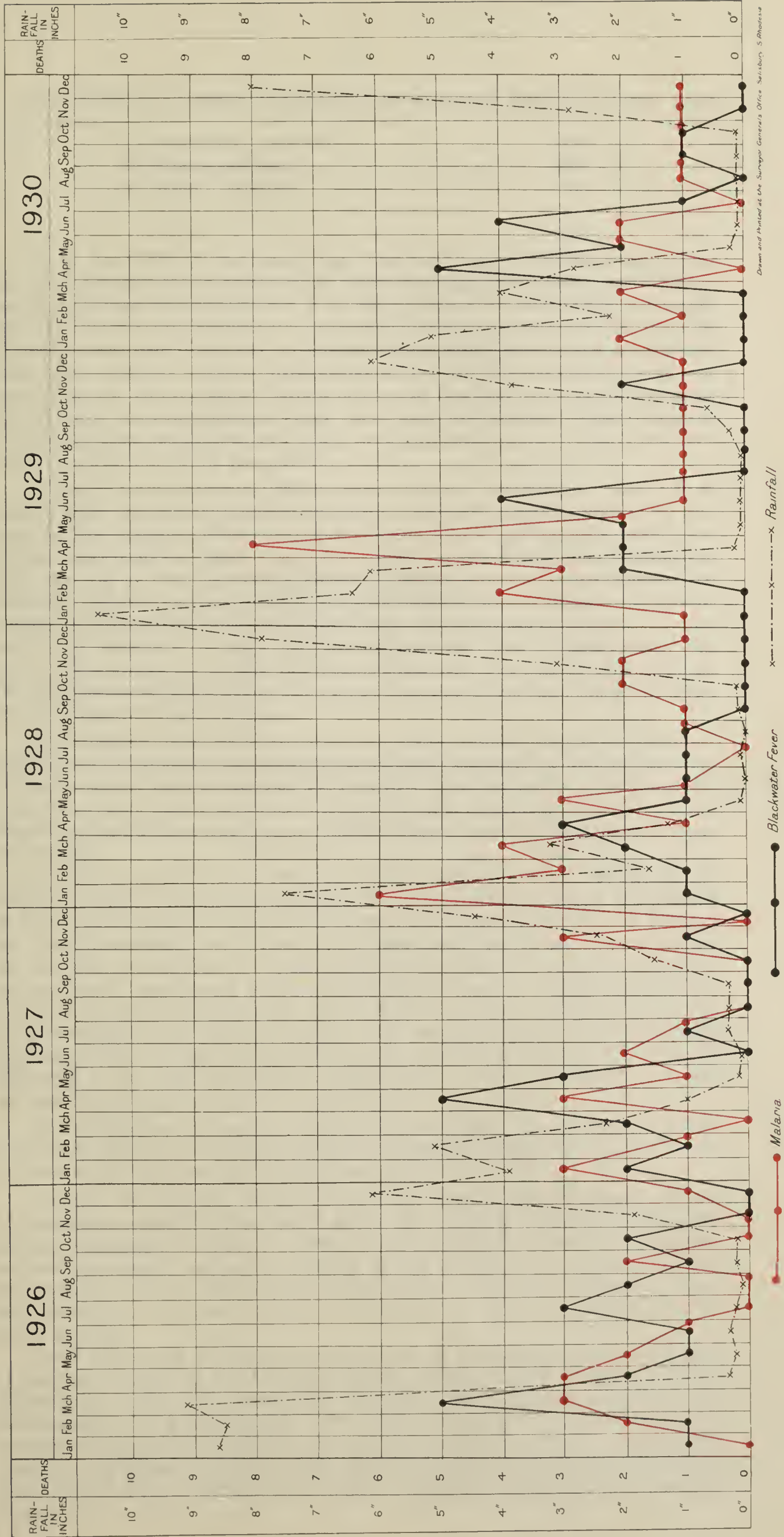
It is hoped that it will be possible to survey the whole question of malaria before long and present a report to the Government thereon.

The number of bottles of quinine issued from the Department was 10,968, as against 14,364 bottles in 1929. The expenditure on quinine during the year was £1,599 10s. and the receipts from sales £1,572, being a deficit of £27 10s.

The accompanying chart shows the close association of malaria, black-water fever and rainfall during the different months of the last five years.

4. Leprosy.

There are three residential hospitals for lepers in the Colony. Out-patient treatment is not practised. (1) The Government leper hospital at Gomohuru, comprising a beautifully situated estate of 4,100 morgen, lying some 30 miles south of Fort Victoria. In this hospital there is a whole-time resident medical superintendent, Dr. Moiser. (2) The Government leper hospital at Mtoko, comprising a small area of land near Mtoko and visited once a week by the Government Medical Officer from Marandellas, which is situated 100 miles away. This is a bad arrangement, and it is hoped that other provisions will be made shortly. (3) The Swedish Mission at Mnene, which has a small leper settlement attached.



Drawn and Plotted at the Surge General's Office, Salisbury, S. Rhodesia

The numbers of lepers treated at these hospitals during the year were as follows:—

(1) Gomohuru hospital	369
(2) Mtoko hospital	261
(3) Mnene Mission	66
	<hr/>
	696

It is desirable to discharge from the hospitals all patients in whom the disease has been so arrested by treatment that after prolonged clinical and bacteriological observations it is felt justified to class them as cured, and also "burnt out" cases, *i.e.*, patients in whom, after a period, usually of many years, the disease is no longer active, though extensive deformities may have resulted. These discharged cases will be examined every six months by the Government Medical Officers of the districts. In this manner 135 patients were discharged from the two Government leper hospitals during the year, while 209 new cases were admitted and 572 cases remained under treatment on 31st December.

There is an increase of 188 over the number treated last year. It is certain that the above number of lepers represents only a portion of the total in the Colony. With a view to further investigating this point, Dr. Moiser was asked to make a month's survey in the Chibi area examining, with the aid of the Assistant Native Commissioner and some nurses and orderlies, all the natives, without any selection, whose presence could be secured. Among 6,814 natives examined, 35 lepers were found, *i.e.*, 5.1 per 1,000 persons. It may here be pointed out that 5 lepers per 1,000 persons is regarded as a high incidence of leprosy. Of the 35 lepers found, Dr. Moiser classified 27 as early cases and as non-infectious. Most of them were unaware of their malady.

The small number of advanced cases found during the survey suggests that others in this stage were hiding, especially male cases, seeing that only 14 males were found as against 18 females, which is contrary to the usual experience that there are twice as many male lepers as female. It is, therefore, probable that there are further lepers in this district who were not found.

14 + 18 = 32 ?

It is not possible to make any general deduction as a result of this survey. There is, however, evidence of considerable extent of the disease in Southern Rhodesia—at any rate in certain districts. Leprosy is perhaps the least infectious of all infectious diseases, and the dread of it is partly the survival of a somewhat incorrect biblical tradition. Only two Europeans in the Colony are known to have developed it, and it is possible that one of these was infected elsewhere. Nevertheless, it is not a danger which can be disregarded, an instance of which was the discovery by a Government Medical Officer during the year of an unrecognised case of leprosy amongst the staff of a large European establishment. The possibility of house servants spreading leprosy is not unknown.

It is, therefore, essential to formulate and put into practice a policy which will have as its ultimate aim the complete elimination in the course of time of leprosy from Southern Rhodesia.

It may be pointed out that there are two widely divergent schools of thought in regard to the correct policy as to leprosy: (a) one is that compulsory segregation is the best means of eliminating this disease; (b) another is that compulsory segregation should not be practised, on the ground that this policy leads to early cases being hidden and only discovered when they are in an advanced stage, after they have almost certainly infected other persons.

It is interesting to quote the conclusions of the Leprosy Advisory Board of the Government of the Union of South Africa in July, 1930:—(a) That segregation is the only sound and scientific policy, having regard to the circumstances in South Africa. (b) That out-patient treatment in clinics cannot under present conditions be advised for South Africa. During the year Dr. Cochrane, Secretary of the British Empire Leprosy Relief Association, visited South Africa and made interesting observations upon the disease.

For the purpose of arriving at a policy which will have as its object the ultimate eradication of leprosy, the following points are put forward for the consideration of the Government:—

(1) Leprosy is a disease which progresses very slowly. In its early stages it may be non-infective, and it is in the early stages that the disease is most readily cured and also can be cured without mutilation or permanent damage to the patient. As the disease progresses it tends to become more infective, and deformities of a disfiguring character are likely to ensue unless the disease is arrested by treatment. The majority of cases in our leper hospitals are of the advanced type, and there is evidence that the early cases exist, but are not being found at present. It is, therefore, essential that the policy adopted should be one which will result in the discovery and treatment of patients in the early stages.

(2) Childhood and young adult life are the ages at which the individual is most susceptible to leprosy. Facilities should therefore be provided for the separation of healthy children from their infectious parents at the earliest possible age. At present there are some 20 healthy children living amongst highly infective patients in the Government hospital at Mtoko.

(3) Educative measures are necessary to remove the erroneous ideas which at present tend to prevent lepers from coming forward for treatment. It must be made known that leprosy is curable, and most readily curable in its early stages, and also that a leper institution is a hospital, admission to which does not mean life-long imprisonment. In this connection the return of cured patients to their districts can be made the means of effective propaganda.

(4) The health of the native must be considered as a whole and not as a series of individual medical problems, and leprosy must be included as a part of this whole.

(5) As in the case of other endemic diseases, *e.g.*, malaria, Southern Rhodesia must solve its own problem on the lines best adapted to the circumstances and conditions existing in its own area.

(6) The leper hospital which is in the process of development in the district of Mrewa and Mtoko is in a stage where it could be efficiently utilised for the purpose of experiment and research in regard to the most effective policy for this Colony. The arrangements for this hospital are not satisfactory at present.

5. Small-pox.

The table given below shows that small-pox was prevalent in this country in 1920-22. It appears to have declined during the following years. A further epidemic commenced in 1928 and has increased up to 1930, in which year there were 697 known cases.

Small-pox Cases, 1920-30.

Year.	European.	Native.	Total.
1920 ... ..	...	448	448
1921	1	514	515
1922	1	503	504
1923 ... ..	...	16	16
1924 ... ..	...	2	2
1925	2	10	12
1926 ... ..	...	1	1
1927 ... ..	...	6	6
1928	1	254	255
1929	2	425	427
1930	3	694	697

In considering these figures it should be pointed out that (1) the majority of cases are among natives. Few cases occur amongst the European population, which fortunately is well protected by vaccination. (2) When the disease occurs in the native reserves the full extent of it is seldom known, and therefore these figures almost certainly do not show the entire extent of the disease.

The epidemic of 1930 occurred partly in the native reserves, but also on farms around the Salisbury district. The type of the disease was a severe one, the small-pox rash being profuse and the patients seriously ill. A certain number of them, how many is unknown, died. There were 142,584 vaccinations performed during the year.

Small-pox is a grave disease owing to the rapidity with which it spreads, and to the serious disturbance it causes on farms and in townships where outbreaks occur. It is known that the disease is prevalent and in a severe form on our eastern and north-eastern borders in areas from which there is a considerable immigration of labour into Southern Rhodesia. It is therefore essential that this country should be protected as far as possible by vaccination.

To vaccinate on an extensive scale it is necessary to have a large supply of lymph available. This is not the case at present, as lymph has to be secured from a long distance at a considerable cost. It is therefore recommended that the Government erect their own station for the production of calf lymph with a view to supplying a sufficient quantity to enable vaccination to be carried out extensively. In this way it should not be difficult to keep an area with a population of only one million almost immune from epidemics of small-pox. The production of lymph in this country would also effect a considerable saving of money. The table given below details the cost of lymph during the last three-and-three-quarter years:—

Year.	Expenditure.	Approximate number of tubes.
1927-28	£2,847 4 6	152,385
1928-29	2,238 10 5	134,311
1929-30	1,863 11 4	111,814
1930 (April to December) ...	990 6 1	58,000

6. Tuberculosis.

There were 19 European deaths from tuberculosis as against 16 in the previous year, and 47 new cases were admitted to the Government hospitals as compared with 38 in 1929. The above figures show an increase on last year, but the position in Southern Rhodesia in regard to tuberculosis is on the whole satisfactory for the following reasons:—

(1) The Colony is almost entirely free from bovine tuberculosis. Cases amongst cattle and pigs are so rare as to be matters of interest and discussion. The economic value of this fact does not concern the present report, but its effect upon the public health will be appreciated when it is called to mind that in countries like Great Britain over 25 per cent. of cows are tubercular, between 1 and 2 per cent. are yielding milk containing tubercle bacilli, and 8 per cent. of unselected samples of milk taken in large English towns are found to contain these organisms. In such countries a large proportion of cases of tuberculosis in children, the chief consumers of milk, has been shown bacteriologically to be bovine in type.

From the purely public health aspect this matter is one for the utmost congratulation to the inhabitants of the Colony, and to the Veterinary Department which has so skilfully kept Southern Rhodesia in such an enviable position.

(2) Apart from the fact that the risk of infection is thus diminished, there is much to suggest that the climate of Southern Rhodesia is one in which tubercular patients do well.

(3) These facts are reflected in the low percentage of deaths caused by tuberculosis in the Colony, being 4.5 per cent. for the last five years in Southern Rhodesia, as compared with 7.1 per cent. in England and Wales in 1929.

The erection of separate hospital accommodation will be considered when there is sufficient demand for it. Such provision is desirable for the following reasons:—(1) Tuberculosis is an infectious disease and should

not be nursed in general wards. (2) Owing to the nature of their ailment, consumptive patients are apt to be disturbing to others in the same ward, especially at night. (3) The régime of a hospital for tuberculosis is different from that of a general hospital, and it is therefore to the advantage of such patients to be separate. (4) The structure of buildings suitable for carrying out the treatment of tuberculosis is different from that of a general hospital. (5) Owing to the chronic nature of their disease, tubercular patients commonly require long periods of treatment and are liable to occupy beds which may be urgently needed for acute cases.

7. Helminthic Diseases.

Schistosoma (Bilharzia) *hæmatobium* is the variety that has been found most frequently among Europeans. *Schistosoma* (Bilharzia) *mansoni* is also found, though not very frequently, among the white population, and is a disease of similar importance from the point of view of its effect upon the individual. It must be pointed out that these worms are distinctly injurious, and although cases may last for years without showing any obvious symptoms, they are capable of producing organic disease of a serious character. These diseases lend themselves readily to curative measures, but the value of cure may be small unless steps are taken to prevent re-infection.

(1) *Schistosoma* (Bilharzia) *hæmatobium* infests the bladder. During the last three years considerable investigation of specimens obtained from European school boys has been carried out by the Director of the Bacteriological Laboratory. Out of 1,247 boys examined, 108, or 8.7 per cent., were found to be infested with this parasite in schools in Bulawayo, Gwelo, Salisbury and Umtali and one or two other places. In one school 24 out of 90 boys were found to be affected. The limited amount of investigation carried out among girls tends to show that infestations occur, but are less common, probably owing to the fact that girls do not bathe or paddle so much as boys. This variety of schistosomiasis is also the most common form of parasitic worm found among natives in this Colony, and the waters are undoubtedly infected by them. The intermediate host is a small fresh water snail, *Physopsis*.

(2) *Schistosoma* (Bilharzia) *mansoni* infests the intestinal canal. It occurs not infrequently in natives, but appears to be much more localised than *S. hæmatobium*, and has not often been found in Europeans. The intermediate host is also a small water snail, *Planorbis*. The snails, in which these two parasites must undergo a stage of development before the worm can be conveyed from one human to another, are easily recognised, and can be tested as to their infectivity in the Government laboratories.

(3) *Ankylostoma* (Hook worm) infests the intestinal canal, and is found not uncommonly as an indigenous disease amongst natives in Southern Rhodesia. The comparatively cool and dry climate of the Colony is not favourable to this worm, which is probably the reason why severe cases of ankylostomiasis are rarely seen amongst indigenous natives. More severe cases are found in native labourers immigrating from northern areas where the climatic conditions favour heavy infestations. With a view to alleviating this debilitating disease amongst imported labourers, mass treatment has been applied at the frontier stations of the Colony, 1 c.c. of oil of chenopodium with 2 c.c. of carbon tetrachloride being the mixture at present employed. Altogether 50,000 doses have been issued to these stations during the last nine months, and no untoward results have been reported from them. This parasite is not often found amongst Europeans in Southern Rhodesia. It has no intermediate host.

(4) *Ascaris* (Round worm) and *Tænia solium* and *T. saginata* (Tape worms) occur among natives and tend to be localised. Europeans are not often affected. *Ternidens diminutus*, a worm belonging to the same group as the hook worm, has been found by Dr. Blackie to occur not infrequently among natives in Southern Rhodesia. It has not been found to have severe pathological effects.

The most important measures against schistosomiasis are (1) the dissemination of knowledge so as to enable infestation to be avoided; (2) the cure of persons who have been infected, as they are capable of infecting their fellows, given the presence of the suitable intermediate snail; (3) the prevention of re-infection after cure.

Much valuable and interesting work has been carried out by Dr. Blackie from the London School of Hygiene and Tropical Medicine, who has been investigating the helminthic conditions of the Colony. An account of his survey is published in this report. The complete results will be issued later.

8. Venereal Diseases.

Clinics for the treatment of venereal diseases have been established by the Government at a number of centres, and many cases are treated by the missions throughout the country. In addition, the larger municipalities are giving attention to the problem of this disease, which is especially important in townships and mining areas. The spread of venereal disease is known to be promoted by greater facilities for travel, by the slackening of moral restrictions among de-tribalised natives, and the ease with which native prostitutes can earn what to them constitutes veritable wealth. On the other hand, it is interesting to note that Dr. Moiser, who carefully examined 6,814 unselected natives of both sexes in the Chibi district, comments upon the small number showing signs of venereal infection, a number which was much below what popular conceptions of the prevalence of this disease would have led to suppose, and was considerably less than the findings of the Royal Commission on Venereal Diseases in regard to English towns.

In addition to maintaining a number of clinics, the Government supplies anti-venereal drugs free of charge to various centres maintained by local authorities, missions, etc. The total expenditure of this kind in 1930 was approximately £1,673.

The following table shows the number of patients dealt with at various centres during 1930, but does not represent the total number of cases treated throughout the Colony:—

Centre.	Total number of cases treated.
Mount Darwin Dispensary	47
Goromonzi Clinic	195
Rusape Clinic	238
Bikita Dispensary	63
Gatooma Hospital (Native)	655
Salisbury Municipality	240
Bulawayo Municipality	24
Umtali Municipality	58
Morgenster Mission	736
Mnene Mission	634
Msase Mission	887
Ingwenya Mission	10
Old Umtali Mission	3
Mount Selinda Mission	91
Holy Cross Mission	40
Que Que	53
Total	3,974

9. Diphtheria.

There were 30 European cases of diphtheria, 16 or more than half of which occurred in one epidemic near Salisbury. There were three deaths during the year. This disease has shown some tendency to increase during recent years.

DIPHTHERIA: EUROPEAN POPULATION.

Year.	Cases.	Deaths.
1926	10	2
1927	7	3
1928	11	3
1929	26	5
1930	30	3

10. Typhoid Fever.

There were notified 42 cases of typhoid fever with 6 deaths among the European population, and 13 cases were reported among natives. In addition, there were 3 European cases of para-typhoid fever. There was no individual epidemic, the 42 European cases occurring in 19 different districts.

11. Cerebro-Spinal Meningitis.

There were 7 European and 76 known native cases of cerebro-spinal meningitis during the year. This disease is common among natives, and there is no doubt it is borne to Europeans by native carrier cases. No European deaths occurred.

12. Whooping Cough, Measles, Scarlet Fever, Chicken-Pox and German Measles.

Of these highly infectious and troublesome ailments, whooping cough and measles are recognised as being the most serious, having regard to both the number of deaths and to the after effects that ensue. It will be seen from the table given below that whooping cough has been responsible for 15 deaths and measles for 6 deaths during the last five years. Scarlet fever, chicken-pox and rubella (German measles), though of frequent occurrence, caused no deaths during that period. The numbers of deaths given below are complete. The numbers of cases are approximate.

EUROPEAN CASES AND DEATHS—FIVE YEARS 1926-30.

	Cases.	Deaths.
Whooping cough	252	15
Measles	331	6
Scarlet fever	179	...
Chicken-pox	608	...
German measles	101	...

13. Influenza.

At the end of the winter season an epidemic of influenza spread over the Colony. Though the type was commonly the mild catarrhal variety, a number of severe cases also occurred. Eleven European deaths from this disease were registered during the year.

14. Yaws.

This chronic infective ailment occurs among natives as a somewhat localised disease, especially in the hotter districts of the Colony. In some of these areas the numbers who have contracted it are high, the condition of close contact existing in kraal life tending towards its dissemination. Many yaws patients are treated in the native hospital at Ndanga and in the dispensary for natives which is ably supervised by the Native Commissioner at Bikita. In addition, 354 cases were treated by Dr. Mackenzie in July at the Sinekoma yaws clinic in the Sebungwe district. Yaws is a disease which responds readily to treatment, and which, when neglected, frequently results in grave illness in its later forms. Unfortunately many cases are not seen during the early and most infectious stages—a factor which is detrimental to the prospect of eradicating the disease.

15. Pseudo-Typhus or Rhodesian Ten-Day Fever.

Cases of this fever have occurred not infrequently. Some 9 patients were treated during 1930. It has not been possible to carry out any definite investigations, but evidence is accumulating that a tick is the

vector, whether in a larval or adult stage is uncertain, and the genus is as yet unknown. In two cases the disease commenced two and four days subsequent to the bite of a "red tick." In the former case the rash was very profuse and the illness severe; in the latter a mild attack with scanty rash ensued. Further investigations will be undertaken as soon as opportunity offers.

16. Human Trypanosomiasis.

Although the tsetse fly *Glossina morsitans* occurs in different parts of this Colony and is accompanied by a corresponding prevalence of nagana, the area in which human trypanosomiasis (sleeping sickness) has been known to occur is limited to the western portion of the Sebungwe district. The central portion of the affected area is the valley of the Busi River, which on this account, together with a large area of surrounding country also infested with tsetse fly, was depopulated in 1913 and has remained so since. Cases occur occasionally around this region, but are few in number. In 1930 two cases, both natives, of whom one died and one recovered, were treated in Gatooma Hospital. There were no European cases.

17. Undulant (Mediterranean) Fever.

Two European cases of this disease and one death were notified during the year. Contagious abortion of cattle, to which this disease is closely allied, is common in this part of Africa.

18. Plague, Rabies, Typhus Fever.

Southern Rhodesia is to be congratulated on its complete freedom from plague and rabies—diseases of grave import which do much harm in parts of the continent both north and south of the Colony. One death was registered from typhus fever during the year, although no cases were notified.

CHAPTER IV.—GENERAL.

1. Maternity and Child Welfare.

(A) **Maternity.**—The average death rate of European mothers due to pregnancy and child-birth in Southern Rhodesia for the ten years 1920-29 was 5.1 per 1,000 births, as compared with 4.1 in England and Wales. In 1930 the rate for Southern Rhodesia was 6 per 1,000 births, which is a high rate. The following table gives the causes of maternal deaths in Southern Rhodesia during the past ten years:—

EUROPEAN MATERNAL DEATHS, 1921-30.

Cause of death.	No. of deaths.	Percentage.
Puerperal sepsis	17	32.69
Accidents of pregnancy	12	23.08
Other accidents of child-birth	10	19.23
Puerperal hæmorrhage	6	11.54
Puerperal albuminuria	6	11.54
Other causes	1	1.92
Total	52	100

It will be noted that puerperal sepsis was the principal cause and is responsible for one death in every three due to child-birth. Puerperal sepsis is an infection, and though the cause may at times be difficult to trace, it is to a large extent a preventable condition. Accidents associated with pregnancy and various accidents of child-birth also rank high; many of these can be foreseen and avoided by ante-natal supervision. Albuminuria, which was responsible for 11 per cent. of the deaths, is a condition which lends itself to diagnosis and treatment in its early stages.

The question of maternal mortality has become one of great importance throughout the world of recent years, because (1) a high maternal mortality rate means not merely so much loss of life; it also implies a high rate of illness during pregnancy and child-birth, some of which may be of long subsequent duration. (2) The causes which bring about a high maternal mortality rate also contribute towards a high neo-natal mortality, *i.e.*, to a large number of deaths of infants during the first four weeks of life. (3) It has been shown that, given two conditions, it is possible to reduce the maternal mortality rate to at least one-half. These conditions are, firstly, satisfactory supervision and hygiene of pregnancy; and secondly, reasonably satisfactory conditions at the time of child-birth.

A large amount of investigation has been carried out on the subject of maternal mortality during recent years, and valuable recommendations have been made by authorities such as the English Ministry of Health and the Medical Research Committee of the Privy Council. The following are the most important of these recommendations:—

1. *The Supervision of Pregnancy.*—It is recognised that a large number of the abnormalities occurring in connection with motherhood can be detected and foreseen by a doctor during the period of pregnancy, although they may not be at all, or only slightly, apparent to the patient. Further, it is known that abnormalities may lend themselves to remedy and early treatment, thereby avoiding grave trouble at a later stage. The report of the Ministry of Health on Maternal Mortality and Morbidity, 1930, contains the following recommendation:—“Ante-natal supervision is now recognised as an essential part of the care of pregnant women . . . the committee have no hesitation in saying that every pregnant woman should have the advantage of effective ante-natal supervision, and in every area necessary arrangements should be made to this end. Such arrangements should include the education and encouragement of the mother to make use of the facilities provided.” It is obvious that difficulties have to be surmounted in organising such arrangements in a country of long distances like Southern Rhodesia, but it is considered that these difficulties could be to a great extent overcome.

2. *The Provision of Hospital Beds for such Cases as need Institutional Care.*—There are arguments in favour of women who have suitable facilities for the purpose of being confined in their own homes. In many instances, however, this condition cannot be complied with, and such is often the case in the Dominions and Colonies, where distance, domestic arrangements, etc., render the provision of institutional care a matter of necessity. In this connection it must also be pointed out that the efficient staffing of maternity homes is a matter of great importance, and further, that the construction and planning of such homes requires perhaps greater care than that of any other medical institution.

3. *Trained Midwives.*—Another essential point is the provision of the services of a qualified midwife to act either as a midwife or maternity nurse. At present there are no facilities for training midwives in Southern Rhodesia, and women who wish to obtain this important qualification have to study and obtain their diplomas in other countries. This is a matter which in due time it will be desirable to alter, as women who would like to take out their training in midwifery are thus prevented by financial or other reasons from doing so.

The practice of midwifery is a service in which there are many difficulties, and State supervision of such practice is universally admitted to be desirable. The first step in this direction would be the registration of midwives, and a Bill for this purpose has been approved by the Minister, which it is hoped will be laid before the Legislative Assembly at the next session.

There are maternity homes, controlled by voluntary committees, at Umtali, Rusape, Salisbury, Hartley, Gatooma, Gwelo, Fort Victoria, Selukwe and Enkeldoorn. Several of these homes admit general medical and surgical cases besides maternity patients. Towards the above homes

the Government made during the year for constructional and maintenance purposes grants amounting to £2,897 17s. 4d. The Beit Railway Trust Maternity Grant Committee also made generous contributions to these homes. While some of the above are excellent modern maternity homes, there are others that fall below the minimum standard which should be attained.

(B) **Child Welfare.**—While the relatively low infant mortality rate of Southern Rhodesia (average for ten years, 65 per 1,000 births, as against 74 for the same period in England and Wales) reflects credit upon the care shown by the mothers of Southern Rhodesia, it must be pointed out that the loss of life represented by this rate can be still further reduced, and that lower rates have been attained in other places, e.g., New Zealand, where it is 36.

There is in fact no necessity for 65 out of every 1,000 babies born in this healthy country to die before they walk or talk. Besides this regrettable loss of valuable lives, it must be pointed out that a high infant mortality rate implies also:—

- (a) The invaliding of many surviving children, since conditions which kill some injure others.
- (b) A high death rate during the next four years of child life.
- (c) The existence of some unhealthy conditions in the mothers or in the home life of the people.

Table I. shows the causes of infant deaths in Southern Rhodesia during the last ten years.

EUROPEAN INFANT DEATHS: TABLE I.

Causes of Death, 1921-30.

Disease.	No. of deaths.	Percentage.
Premature birth and diseases of early infancy	231	37.68
Bronchitis and pneumonia	89	14.53
Diarrhoea and enteritis	69	11.26
Malaria	49	7.99
Measles, whooping cough, diphtheria, dysentery	33	5.38
Various, not classified above	142	23.16
Totals	613	100

Table II. shows the infant deaths during different months for the last ten years.

EUROPEAN INFANT DEATHS: TABLE II.

Deaths during different Months, 1921-30.

	No. of deaths.	Percentage.
1st month	275	44.86
2 months to 6 months ...	205	33.44
6 months to 12 months ...	133	21.70
Total ..	613	100

Neo-natal Mortality.—It will be noted that 44.86 per cent. of deaths occurred during the first month of life, which constitutes the neo-natal mortality. These deaths are due chiefly to premature birth and diseases of early infancy (see Table I.). It is recognised that these deaths, which form much the largest group, are due chiefly to causes operating before birth, and that the remedy lies in ante-natal supervision of pregnant women, a measure which is also regarded as perhaps the most important essential for reducing maternal mortality and morbidity.

Diarrhœa and Enteritis, from which 11.26 per cent. of deaths occurred, are usually the result of an infection, frequently fly-borne. Education in the art of mothercraft, by infant welfare centres and other means, has been shown to effect large reductions in this group.

Malaria.—The fourth highest cause of death is malaria, which was responsible for 7.99 per cent. of infant deaths. Malaria is a definitely preventable illness. It is further discussed under the appropriate section of this report.

It will thus be seen that there is the possibility of saving many infant lives. It must be repeated that the measures which would save these lives would also save from dangerous and often lasting invalidity many other children who at present develop, though they do not die from, the ailments named above.

Valuable work in the above connection is carried out, especially among the coloured and Asiatic population, by the Child Welfare Societies in our two largest towns, who receive grants for this purpose from the Government and the local authorities concerned. They can, however, deal with only a small portion of the problem. During the year 1930 the Government made grants amounting to £515 6s. towards the maintenance of health visitors at Salisbury and Bulawayo and district nurses at Sinoia and Inyanga.

2. Town Planning.

The rapid growth of townships and the revolution in road transport during the twentieth century have awakened the world to the ugliness, inefficiency and economic waste which have resulted in numberless instances from the haphazard development of towns without any preconceived plan. In many cities this state of affairs is beyond remedy or can only be rectified at great expense.

Southern Rhodesia is in a particularly favourable position, in that it is possible to profit by the mistakes made in the past by older countries and to ensure that the building sites of the future will be laid out with a view to forming well planned, convenient and beautiful towns. A tribute must be paid to the pioneers of this country who insisted upon the broad roads which have resulted in the spacious and attractive towns that exist to-day. On the other hand, it must be pointed out that the old grid-iron plan which has been so commonly adopted in Southern Rhodesia, and which was well fitted to the methods of transport existing at the close of the nineteenth century, is not suited to modern methods of traffic.

All plans for new townships, which are submitted to the Minister for approval as required by section 111 (1) of the "Public Health Act, 1924," are carefully scrutinised by the expert committee appointed by him to consider such plans, special consideration being given to: (1) The need or desirability of planning a township in the locality suggested; (2) the lay-out of the streets; (3) water supply, soil, refuse disposal and other matters relating to the public health; (4) reservation of areas for open spaces, Government buildings, schools, etc.

There are certain points to which attention must be drawn: (a) There is still a marked tendency to plan new townships on the grid-iron design, which is usually incompatible with the safety requirements necessitated by modern methods of rapid road transport. (b) While some excellent schemes have been submitted during the year, there is in the opinion of the committee a regrettable tendency to plan townships of such a size and in such localities that there is little likelihood of their coming into exist-

ence within any reasonable period of time. (c) The question of town planning, not only within their own areas, but also within the adjoining country which will one day merge with their areas, is one of vital interest and importance to the municipal authorities of Southern Rhodesia to-day. With these considerations in view, the Minister has instructed the committee to draw up and submit to him a Town Planning Bill, which it is hoped will be laid before the Legislative Assembly in due course.

Eighteen applications for approval of new townships, etc., were dealt with during the year 1930, as compared with five in the preceding year. The committee recommended that two of these applications were unsuitable, and sixteen were approved after alteration in almost every case. The municipal authorities were consulted in reference to several schemes immediately adjoining the areas under their jurisdiction.

3. The Health of the Native.

The problem of the health of the native must be considered from two different aspects, that of:—

- (1) the European,
- (2) the Native.

(1) The native is the reservoir of infective tropical disease, from which the European and his family is subject to invasion. Unfortunately the native carrier is commonly a perfectly healthy looking individual, so that the European may not have the opportunity of realising until too late the danger to which he is being subjected. Amongst endemic diseases from which the native suffers and which are communicated to the European are malaria, dysentery and others. The native also suffers rather extensively from internal worms, such as schistosomiasis (formerly known as bilharzia), ankylostomiasis (hook worm), ascariasis, etc., all of which are highly injurious parasites.

It must be pointed out that as the Colony becomes more closely settled by Europeans this danger will tend to increase rather than decrease. It is therefore most essential that a policy should be framed and adopted which will have in view the definite object of reducing, and ultimately eradicating, these diseases which are endemic among the native population.

(2) Natives dwelling in townships and their immediate environs have ample medical facilities in excellent Government hospitals. In addition, the Government have one small hospital for natives only at Ndanga, and several dispensaries, also small, under native attendants, chiefly for the treatment of venereal disease. Five missions have doctors, and are subsidised for this purpose by the Government. The mining companies which have hospitals sympathetically allow natives, apart from their employees, to be admitted, though the number dealt with in this way is also small. Excellent as the above institutions are, a careful examination of the position makes it clear that only a small proportion of the native population are at present receiving any medical treatment, and that the great majority are devoid of such care, apart from what they receive from native doctors.

The medical work of the native "doctors" must frankly be described as being of the most primitive character. In their midwifery also there is much that may be termed folly and superstition, with which there is a considerable admixture of cruelty, and the sufferings of the native women in child-birth are often extreme. We have no knowledge of what the death rates amongst the native population may be, but these rates, especially those of children, are regarded by experienced observers as being high.

While many aspects of the native question are open to doubt and discussion, there is an unanimity of opinion in regard to the need and desirability of the provision of medical treatment for their more urgent wants. This was demonstrated at the meeting of the South African Medical Association held at Durban during the year, when there was complete agreement as regards the necessity, though there were wide differences of opinion as regards the correct method, for securing medical treatment of natives.

The following points are submitted as containing the essentials of such a scheme:—

(1) That the health of the native and the many diseases from which he suffers should be considered as a whole, and that the establishing of separate clinics for individual ailments, such as venereal disease, should be avoided.

(2) That the country should be mapped out into large areas, to which should be applied medical units as outlined below, gradually and as the circumstances of the country permit.

(3) The medical unit should consist of a central hospital, which should be of the simplest possible type, native patients residing as far as possible in huts and under conditions resembling their home life as closely as is consistent with efficiency. To such a hospital there would be appointed a Government Medical Officer with a nucleus of a European nursing staff, the great part of the nursing being carried out by natives, trained as outlined below.

(4) To each hospital would be attached several dispensaries, of which six would probably be a *maximum* number. These dispensaries would be at a *maximum* distance of fifty miles on motorable roads. As, however, the native is willing to come long distances to hospital, it is obvious that the entire area covered by one medical unit with its ring of dispensaries would be very large. These dispensaries also would be of simple construction, and would be staffed by trained natives and directly supervised and visited by the medical officer of the central hospital at frequent intervals, say once every week or ten days.

(5) That native men and women should be trained as orderlies and midwives for this service at Government hospitals. Such persons should be natives of known character, who have previously had an education up to Standard VI., or as near this standard as possible. These natives would receive also an elementary training in hygiene, and it would be part of their duties to visit native kraals in their areas.

(6) As much advantage as is possible would be taken of existing hospitals.

(7) The scheme should work in close co-operation with the Department of the Chief Native Commissioner and other Departments dealing with natives.

(8) It is considered desirable that the native should bear the cost of his medical care.

NATIVE DISPENSARIES.

The following table shows the number of patients treated during 1930 at the dispensaries maintained by the Government. Many of these were venereal cases.

Native dispensaries.	Number of patients.
(1) Bikita	2,256
(2) Mount Darwin	820
(3) Rusape	238
(4) Goromonzi	203
(5) Kezi	183
(6) Buhera	364
(7) Gwaai	295
	<hr/> 4,359

The following tables supply information in regard to the number of natives employed on mines and the extent of illness and death occurring among them. Further information in regard to pneumonia is given under the appropriate section of this report (Chapter III., 2).

TABLE I.

NATIVES ON MINES.

Comparative Statement of Mortality since 1926.

Year.	Average number employed.	Disease.		Accident.		All causes.	
		Number of deaths.	Death rate per mille per annum.	Number of deaths.	Death rate per mille per annum.	Number of deaths.	Death rate per mille per annum.
1926	...	598	14.22	91	2.16	689	16.38
1927	...	595	14.15	94	2.24	689	16.39
1928	...	756	17.30	94	2.15	850	19.45
1929	...	876	18.64	110	2.35	986	20.99
1930	...	687	15.19	98	2.17	785	17.36

TABLE II.

Natives on Mines.*Cases of Sickness, Deaths and Death Rates, 1930.*

Disease			Total sick.	Total deaths.	Death rate per mille per annum.
Malaria ...	...	...	3,298	31	0.68
Scurvy ...	...	...	96	2	0.04
Syphilis...	...	...	637	13	0.29
Pneumonia	...	...	1,896	377	8.34
Phthisis...	...	..	63	43	0.95
Other diseases of the chest	...	...	2,599	12	0.27
Dysentery	...	...	151	8	0.18
Diarrhoea	...	...	565	2	0.04
Other intestinal diseases	...	...	129	22	0.49
Heart disease	...	...	66	18	0.40
Debility	...	...	101	6	0.13
Influenza	...	...	3,108	43	0.95
Other diseases	...	...	2,900	110	2.43
Minor ailments	...	...	15,864	...	...
Total ...			31,473	687	15.19
Accidents and injuries—					
Major	...	...	260	98	2.17
Minor	...	...	12,352	...	...
Totals ...			44,085	785	17.36

4. Legislation.

Legislative measures are required for the following:—

(1) *Registration of Nurses and Midwives.*—Initial legislation for this purpose was formulated in the Medical, Dental and Pharmacy Act of 1927. This now needs to be supplemented, because (a) no nurses or midwives have applied for registration under the provisions dealing with the registration of *bona fide* nurses and *bona fide* midwives; (b) the statutory period of one year within which *bona fide* nurses and *bona fide* midwives were permitted to register has now long passed and cannot be re-opened without legislation; (c) only three midwives have applied for registration and only one mental nurse; (d) extended measures, on the lines at present in force in other countries, are required; (e) an effective system of registration of nurses and midwives is an essential preliminary to the registration and supervision of nursing homes.

(2) *Registration and Supervision of Nursing Homes and of Maternity Homes.*—There are a number of private nursing homes, including proprietary maternity homes, in the Colony. It has been recognised of recent years that State supervision of such homes is an essential part of the public policy, and it is hoped that measures for this on the lines which have been so successfully applied in Great Britain will shortly be submitted to the Legislative Assembly.

(3) *Town Planning.*—The need for legislation to regulate the planning of new townships on modern lines is discussed under the section of this report dealing with Town Planning.

5. Nursing Facilities for Private Patients.

The public are very well catered for in Southern Rhodesia in regard to facilities for the treatment and nursing of private patients. The Government hospitals supply a service of private wards and beds for paying patients

in general wards which is superior to what can be obtained in the proprietary nursing homes where private patients are treated in most countries throughout the world. Such superiority is shown in (1) the accommodation provided, (2) the quality of nursing, (3) the convenience of accessory services such as X-rays, bacteriological laboratories, massage, etc., (4) low charges. No proprietary nursing homes which have to pay a profit could offer similar services at charges approaching in lowness the rates at present in force for private patients in the Government hospitals of Southern Rhodesia.

CHAPTER V.—HOSPITALS.

For Leper Hospitals see under Leprosy (Chapter III., 4).

The work of the general hospitals continues to increase year by year, in some instances to a remarkable extent. During 1930 there were 13,352 admissions to the Government hospitals, compared with 12,187 in 1929 and 11,132 in 1928. Of the total, 5,272 were Europeans and 8,180 non-Europeans. In the past each year has shown a distinct rise in the number of natives seeking admission, and 1930 was no exception, as 1,034 more natives than in the previous year sought European aid. This fact makes it apparent that any sound scheme for the mass treatment of natives in rural areas will meet with success.

The seasonal incidence for European admissions reached its main peak in April; for natives in October-November. The corresponding minima were August for Europeans and May for natives.

The following figures show the number of patients treated in the Government hospitals in 1930. Further information in regard to patients treated, expenditure and revenue, etc., for each hospital is given in Tables 2, 3 and 4 at the end of this report.

NUMBER OF PATIENTS TREATED IN GOVERNMENT HOSPITALS, 1930.

Private patients	6,153
Free patients—European	1,221
Free patients—native	6,419
Total	13,793

The cost to the Government of the free patients was £38,705.

1. Salisbury Hospital.—European admissions were 1,982, an increase of 87 on 1929 and 148 on 1928. Out-patient attendances, including massage cases, have reached the very high figure of 4,286, or 1,713 more than in 1929. Native admissions totalled 1,635, being the highest yet recorded at this hospital. Native out-patient attendances were 3,290.

In the X-ray department, 590 European and 312 native patients were examined, making a total of 2,670 films exposed. This is a 35 per cent. increase on the work performed in 1929. Fifteen hundred and thirty-eight operations were performed, being an increase of 228 on 1929. Major operations totalled 504 and minor 1,034. During the year much needed extensions to the nurses' home and the kitchen were commenced, and it is hoped that these will be completed during 1931. The portion of the nurses' home already completed has enabled the surgeon-in-charge to take over the house in North Avenue which was originally purchased for him. The Asiatic block has been equipped and is now in use, and by the end of the year building was proceeding on a doctors' room near the operating theatre.

The radiographic department has been brought up to date by the purchase of a Schall plant and upright screening stand, and is now capable of dealing with even more advanced work than it is called upon to do. The apparatus in the electro-therapeutic department has also been added to, making the nucleus of a well equipped and much appreciated section of the hospital.

2. Bulawayo Hospital.—European admissions numbered 1,537, being an increase of 86 on the previous year, whilst natives created a record by attaining a total of 2,049—a 10 per cent. rise. Out-patient attendances, including massage cases (European 4,427 and native 4,425), show the great amount of work done in these departments. Operations performed were 1,086 in number (European 843 and native 243). The figure in 1929 was 875. The X-ray department dealt with 1,047 patients (877 Europeans and 170 natives).

Developments at the hospital include increased accommodation for Europeans from 86 to 100 beds and arrangements for joining the hospital buildings to the municipal water-borne sewerage scheme.

3. Umtali Hospital.—European admissions at 472 remain about the same as in the previous year, but the natives at 597 show a 50 per cent. increase. Operations performed numbered 181. The 763 out-patients, of whom 35 were Europeans, amounted to 2,185 attendances. The X-ray apparatus was used for 70 patients (61 Europeans).

The new hospital was opened in February, thus providing the district with a modern, well equipped institution, including radiographic department and operating theatre.

4. Gwelo Hospital.—European admissions, 397 compared with 401 in 1929 and 440 in 1928, show a slight decline, against which must be reckoned an increase in native admissions from 658 in 1929 to 700. Attendances in the out-patients' department numbered 274 Europeans and 794 natives. Operations performed totalled 221, of which 70 were major (Europeans 44). The site for a new native hospital has been selected on the commonage at a short distance from the town, and the preparation of plans is in hand.

5. Gatooma Hospital.—Two hundred and ninety Europeans were admitted, as against 283 in 1929 and 307 in 1928. Native admissions, including the native venereal disease hospital, numbered 1,103. In 1929 this figure was 823, and in 1928 it was 766, furnishing further proof of the natives' desire for European methods of treatment. The operating theatre has been in much greater demand, 86 European and 66 native major operations having been performed, in addition to a much larger number of minor operations. Out-patient attendances totalled 639, of which 325 were Europeans. Since the town maternity hostel was opened early in the year, maternity cases have not been admitted to the European wards of the general hospital. During the year great improvements have been made in the housing of the native venereal disease patients.

6. Sinoia Hospital.—The work at this hospital continues to increase rapidly, European admissions at 203 comparing very favourably with 156 last year and 82 in 1928, and natives at 405, with 337 in 1929 and 217 in 1928. Operations numbered 101, of which 37 were Europeans. In 1929, 53 operations were performed, and only 5 in 1928.

7. Fort Victoria Hospital.—European admissions at 162 show a decline of 31 on the previous year, but native admissions have risen from 170 to 238. In addition, 50 European and 56 native out-patients were treated.

8. Shamva Cottage Hospital.—There has been a steady decline at this hospital in recent years in European admissions. In 1930 there were 73, as compared with 80 in 1929, and 93 in 1928 and 97 in 1927. Natives, on the other hand, have risen from 196 in 1927 and 265 in 1928 to 388 in 1929, with a slight decline to 355 in 1930. There were 74 European and 21 native out-patients.

9. Gwanda Cottage Hospital.—Europeans admitted 48, being 22 less than in 1929, but 3 more than in 1928. Natives (301) show an increase of 14. Fifteen European and 45 native out-patients attended.

10. Enkeldoorn Cottage Hospital.—Admissions: Europeans, 106, an increase of 44 on the 1929 figures. Natives, at 127, show a slight decrease on the 136 in the previous year.

11. Belingwe Cottage Hospital.—Owing to lack of support, this hospital was closed down on 31st March, 1930. During the three months it was open, 2 Europeans and 13 natives were admitted.

12. Ingutsheni Mental Hospital.—European admissions, 20; native, 73. In all, 359 cases were treated, 76 Europeans and 283 natives. The recovery rate, calculated on admissions, was 29.7 per cent.

During the year new quarters for the matron, a kitchen for male natives and a byre for dairy cows were built; structural alterations to the main dormitory and a new system of drainage were carried out. The home farm, with other suitable work, was carried on successfully, so that the cost of maintenance *per caput per diem* was further reduced by 2½d. to 1/9¼d.

13. Ndanga Native Hospital.—Admissions during the year were 657, a notable increase over the 544 in 1929 and 372 in 1928. The European nursing staff has been increased by one qualified nurse. At this hospital a large amount of valuable work is done among the natives—a daily average of 125.3 patients being treated at the low cost of 2.86d. per head, exclusive of salaries of staff.

CHAPTER VI.—ADMINISTRATIVE.

1. Southern Rhodesia Medical Department.

(1) *Doctors.*—

Medical Director	1
Government Medical Officers, Grade 1	5
Government Medical Officers, Grade 2	6
Government Medical Officers, Grade 3	13
Bacteriologist (whole-time)	1
Bacteriologist (part-time)	1
Medical Superintendent, Leper Hospital	1
School Doctors	2
Aided Government Medical Officers	6
	—
Total Doctors	36

(2) *Nurses.*—

Matron-in-Chief	1
Hospital Matrons	10
Sister Tutor	1
Sisters	19
Qualified Nurses	64
Probationers	78
Mental Hospital Nurses.—	
Men	8
Women	5
	—
Total Nurses	186

(3) *Miscellaneous Staff.*—

School Dentists	2
Analyst	1
Compound Inspectors	2
Chief Clerk	1
Clerks	21
Hospital Secretaries and Dispensers (whole-time)	5
Hospital Secretaries (part-time)	4
Dispensers (whole-time)	2
Radiographers	2
Masseur (part-time)	1
Various	15
	—
Total	56

Total European Staff 278

Total Asiatic and Native Staff 298

Total Staff 576

Dr. A. M. Fleming, C.M.G., C.B.E., retired at the end of the year on reaching the age limit. Dr. Fleming joined the Southern Rhodesia Service in 1894, and was appointed Medical Director in 1897. He devoted his entire professional career to the services of the Colony, and has left behind him a record and an organisation which will long remain a monument to his sterling qualities.

I greatly regret to report the death of Dr. P. H. Henson, who had been a Government Medical Officer since 1921. Dr. Henson's charm of personality had earned for him the strongest affection wherever he worked.

The death of Dr. E. C. Mackay, an Aided Government Medical Officer since 1926, is a great loss to the Colony and to his many friends.

Dr. W. K. Blackie, the Research Fellow from the London School of Hygiene and Tropical Medicine, is spending eight months in the Colony with his assistant, Mr. Macdonald, investigating the helminthic conditions of Southern Rhodesia. Dr. Blackie has shown that the prevalence of parasitic worms, especially among the natives, is greater than was previously known, and has also made some valuable discoveries. An account of his survey is given in the appendix to this report.

2. Expenditure and Revenue.

Expenditure.—

(1) Salaries (including doctors, but not other hospital staffs)	£32,733
(2) Travelling and transport	7,476
(3) Infectious diseases and other medical treatment (excluding hospitals)	18,525
(4) Laboratories and other charges	1,801
(5) Grants and subsidies	4,416
(6) Government hospitals (excluding salaries of doctors)	97,872

Total Expenditure	£162,823
--------------------------	----------

Revenue.—

Bacteriological fees	528
Sale of quinine	1,572
Various	260
Hospital fees	30,911

Total Revenue	33,271
----------------------	--------

Net balance of Expenditure	£129,552
-----------------------------------	----------

3. Southern Rhodesia Nursing Service.

There are 167 nurses employed in the Government hospitals, of whom 86 are qualified nurses and 81 probationers in training.

Probationer nurses, chosen as far as is possible from daughters of persons who are living or have lived in the Colony, are trained in the Government hospitals at Salisbury and Bulawayo. There were 165 applications during the year for 36 probationer appointments and 112 applications for 41 appointments as qualified nurses.

Hitherto nurses trained in Southern Rhodesia have been examined by and have received the certificate of the Medical Council of the Union of South Africa. This is prohibited by the regulations of the Union, and it will therefore be necessary for the Medical Council of Southern Rhodesia to examine their own nurses in future. There is every prospect that reciprocal arrangements will be made whereby the certificate of training and examination of the Southern Rhodesia Medical Council will be recognised in the Union and England and *vice versa*.

The results of the examinations held during 1930 were as follows:—
Preliminary examination: 24 entered, 20 passed (1 with honours), 4 failed.
Final examination: 13 entered, 12 passed (3 with honours), 1 failed.

It is with regret that I record the death of Sister Agatha, of the Dominican order, who was one of the small band of pioneers who founded the Southern Rhodesia Nursing Service in the early nineties. I also regret to report the death of Miss M. Mayes, who was a probationer nurse of great promise.

4. School Medical Service.

The following table shows the number of European pupils in Government schools, Government aided schools and aided farm schools:—

European Pupils Attending Government, Government Aided and Aided Farm Schools.

Age.	Boys.	Girls.	Age.	Boys.	Girls.	
5 years	44	66	15 years	333	249	
6 "	267	224	16 "	248	159	
7 "	341	301	17 "	123	77	
8 "	458	436	18 "	42	56	
9 "	460	380	Total ...	4,598	3,883	
10 "	505	437				
11 "	432	372		8,481		
12 "	448	411				
13 "	462	392				
14 "	435	323				

There were examined during the year 7,292 pupils, and the following cases were recommended for treatment:—

Cases Recommended for Treatment, 1930.

	Number referred for treatment.			
	Entrants.	Inter-mediates.	Leavers.	Total.
Malnutrition ...	4	4	2	10
Uncleanliness ...	9	3	3	15
Skin—				
Ringworm ...	...	3	...	3
Impetigo ...	...	1	1	2
Other diseases ...	5	23	17	45
Eye—				
Blepharitis ...	2	5	3	10
Conjunctivitis ...	1	14	16	31
Defective vision ...	36	116	163	315
Squint ...	4	13	9	26
Other conditions ...	4	17	5	26
Ear—				
Defective hearing ...	25	26	13	64
Otitis media ...	2	11	5	18
Other ear diseases ...	6	11	16	33
Nose and Throat—				
Enlarged tonsils ...	30	47	41	118
Enlarged tonsils and adenoids ...	31	37	12	80
Other defects ...	9	15	8	32
Defective speech ...	...	7	5	12
Teeth—				
Dental caries ...	419	401	154	974
Heart—				
Organic disease ...	...	4	2	6
Functional disease ...	5	7	8	20
Anæmia ...	11	13	5	29
Lungs—				
Bronchitis ...	2	9	4	15
Other non-T.B. diseases ...	27	17	10	54
Tuberculosis—				
Glands ...	1	1	...	2
Hip ...	...	...	...	...
Other bones and joints ...	...	...	...	...
Nervous System—				
Epilepsy ...	...	...	...	...
Chorea ...	...	...	...	...
Other conditions ...	1	7	...	8
Spleen—				
Much enlarged ...	1	43	2	46
Slightly enlarged ...	18	16	21	55
Other defects and diseases ...	74	187	92	353

The health of the pupils in the Southern Rhodesia schools can be regarded as definitely good. A careful system of medical supervision is necessary for the purpose of preventing illness, of detecting ailments in their early stages, and of forwarding in every manner possible the ideal of healthy physical and mental development of the children of the Colony.

Special attention was given to certain features during the year.

(1) *Mentally Retarded Children*.—A survey of mentally retarded children has been made by Dr. Annie Clark during the last three years, the Stanford revision of the Binet-Simon tests being utilised as an aid to grading. This survey revealed the presence of 84 mentally defective children, or 1 per cent. of the school population, a number closely corresponding to the findings of Dr. Lewis in regard to English rural areas in the report of the Mental Deficiency Committee, 1929. Of these 84 children, 68 were classed as feeble-minded or educable, and 16 as imbeciles or idiots and incapable of education.

Two women teachers, who have had special training in this subject in schools in Great Britain, have been appointed by the Minister, one for Salisbury and one for Bulawayo, for the purpose of training children of the feeble-minded grade.

(2) *Physical Instruction*.—There are six women physical instructors on the staff of the Education Department, and it is satisfactory to record that five men physical instructors were added during the year. The main duty of these instructors is the physical training of the normal child—a matter of great importance from the point of view of health. It is hoped, however, that it will also be possible for them to give special attention to children suffering from certain physical defects, such as flat-foot and abnormal spinal curvature. Fortunately rickets is almost unknown in Southern Rhodesia, and the number of children suffering from orthopaedic defects seems to be lower than that in countries such as Great Britain.

WORK OF SCHOOL DENTISTS, 1930.

The Government employ two whole-time school dentists. The following is a summary of their work during the year:—

1. No. of children examined	2,303
No. of children treated	1,008
2. No. of fillings (temporary teeth, 329; permanent teeth, 1,962)	2,291
3. No. of extractions (temporary teeth, 937; permanent teeth, 317)	1,254
4. Other operations	304

In 2,303 children examined there were found 5,815 carious teeth and in addition 1,068 septic teeth, or approximately 3 decayed teeth per child.

5. Laboratories.

(a) The report of the Director of the Public Health Laboratory and Pasteur Institute, Salisbury, for the year 1930, with the report of the Government Analyst, is printed as an appendix.

(b) *Bacteriological Institute, Bulawayo*.—Dr. G. R. Ross started work in the Bulawayo laboratory in August, and has done valuable work during the four and a half months that the institute has been in existence. The number of specimens dealt with was 743, the investigations carried out being as follows:—Microscopical, 369; cultural, 213; biochemical, 82; serological, 79. Specimens were forwarded for examination by the following:—

Government	166
Railway	130
Municipality	43
Private	404

743

6. Health of the B.S.A. Police in 1930.

European Section.—A total of 955 cases of illness and accident were dealt with during the year, of which 50 per cent. are to be classed as of minor character. In all, 9,569 days were lost through these causes, representing an improvement of 77 cases and 729 days on the previous year. It is gratifying to record that malaria, enteric fever, dysentery and influenza all showed a marked decline, whilst no case of blackwater fever occurred in the whole Force. The major causes of disability were accidents resulting in injuries to bones and joints (45 cases, 1,544 days lost).

Venereal disease shows a very appreciable decline from 21 to 8 cases, or 1.5 per cent. of the strength.

Native Section.—Unfortunately it is not possible to record any improvement among the native troops. The total number of cases, 1,430, is an increase of 43 on 1929, and 12,101 days were lost through illness and accident. At least half of the cases and a third of the time lost was due to minor ailments and particularly to accidents. Malaria remains stationary at the figure of 201 cases, whilst dysentery, influenza and pneumonia have very appreciably declined, both in case incidence and in duration of ill-health. The incidence of venereal disease, especially gonorrhœa, is slightly on the up grade.

There were 5 deaths of natives during the year, due to broncho-pneumonia, bronchiectasis, cirrhosis of liver, carcinoma of the lungs and disseminated sclerosis.

7. Inspection of Native Labour on Mines and Other Works.

Two experienced officers of the Native Department are seconded to the staff of the Medical Director. Their duties embrace the application of the health and sanitary sections of the Mines and Works Regulations and the administration of the Native Labour Regulations.

With few exceptions, the reports of these officers are highly satisfactory, and suggest that the mine owners are humane and careful in the treatment of their employees. Simple remedies are available on most mines, and nearly every owner has a car in which he will take cases of serious illness to hospital. Very few cases of short issues of food were found, and most managers now supply a vegetable ration. Cases of ill-treatment are seldom or never heard of, and accommodation has been found to be adequate and satisfactory on all mines.

In a small number of instances it was found necessary to prosecute for non-payment of wages, and in most of these a conviction was obtained.

8. Medical Council.

The Medical Council consists of 13 members, viz., five medical practitioners, two dentists, three chemists and druggists, one legal member and two nurse representatives.

During the year eleven medical practitioners, six dentists and thirteen chemists were added to the register. The numbers of persons registered as at 31st December, 1930, were as follows:—

Medical practitioners	125
Dentists	29
Chemists and druggists	55
Trained nurses	26
Midwives	3
Mental nurses	1

The registration of nurses and midwives is very incomplete at present, and it is hoped that this defect will be remedied before long.

9. Habit-Forming Drugs.

The following drugs were scheduled in 1930 under the Southern Rhodesia Opium and Habit-Forming Drugs Regulations Proclamation, 1923:—Eucodal, dicodide, dilaudide, benzoyl morphine, the methyl and benzoyl derivatives of ecgonine, the morphine esters generally and their respective salts, and any preparation, admixture and extract containing any of the said esters.

Import Certificates.—Seventy-seven import certificates were issued during 1930 for the following drugs as compared with 1929:—

Drug.	1929.	1930.
Medicinal opium	42.57	31.75 ounces
Opium (in tinctures, extracts and other preparations)		204.74 ounces
Morphine alkaloid	71.41	74.13 ounces
Diacetyl morphine (Heroin)	5.23	7.98 ounces
Cocaine	29.35	39.11 ounces

Export Certificates.—Twenty-nine certificates were issued for exporting the following drugs to Northern Rhodesia, Portuguese East Africa and the Union of South Africa:—

Drug.	1929.	1930.
Opium (in tinctures, extracts and other preparations)	2 ounces	47.89 grains
Morphine alkaloid	53.4 grains	6.60 ounces
Diacetyl morphine (Heroin)	54.0 grains	1.11 ounces
Cocaine	91.6 grains	4.41 ounces

Permits issued by the Veterinary Department under the provisions of Government Notice No. 368 of June, 1924, numbered 21, representing:—

Tincture of opium	173.5 ounces
Chloral hydrate	4.0 ounces
Chlorodyne	6.0 ounces
Ext. belladonna	15.0 ounces
Sol. cocaine 5 per cent.	0.5 ounce

There is a definite increase in the quantity of opium imported. This is due to a direct increase in the use of the drug for legitimate purposes.

R. A. ASKINS,
Medical Director.

APPENDIX.

(1) REPORT OF THE DIRECTOR, PUBLIC HEALTH LABORATORY
AND PASTEUR INSTITUTE, FOR THE YEAR 1930.

I. Analysis of Work Done.

A. *Pasteur Institute*.—Fifteen courses of treatment for rabies were sent out for patients in Northern Rhodesia, Nyasaland, Portuguese East Africa and the Belgian Congo.

B. *Research*.—A very necessary research into the causation of enteric-like fevers and dysenteric conditions in this Colony was begun by me during the year, and several new or uncommon causes have been discovered. A large amount of work was done for the purpose of discovering the best means of isolating and identifying pathogenic intestinal organisms.

C. *Routine Work*.—The following table shows the methods employed in the examinations mentioned above:—

Bacteriological and protozoological	4,236
Pathological	1,920
Helminthological (worm diseases)	1,402
Medico-legal	19
Entomological and zoological	6
Chemical	586
General	430
	<hr/>
	8,599

II. Remarks on Diseases, etc., dealt with.

Blackwater.—Returns are no longer sent to the laboratory. A few urines were examined.

Malaria.—688 examinations of blood smears gave 122 positive results, as compared with 123 in 1929. The majority of cases were malignant tertian.

Undulant (Malta) Fever.—152 examinations, chiefly agglutination tests, gave 6 positive results. This disease in Rhodesia is generally due to *B. abortus*. The exact method of infection has yet to be discovered.

Enteric Fevers.—263 routine tests, chiefly agglutinations, gave 28 positives; 20 due to the typhoid bacillus; 2 agglutinated typhoid and paratyphoid A equally; 1 agglutinated typhoid and paratyphoid B; 3 were due to paratyphoid B; and in two cases the infecting organism was uncertain.

Undiagnosed Fevers of Enteric Type.—

(1) In cases of suspected enteric, cultures of blood, stools or urine showed the following organisms:—*B. typhosus* and *Paratyphoid B*. several times, an unusual type of *Typhosus* once, unusual paratyphoids of the "N" type (Indol formers) 4 times, bacilli of the *Asiaticus* type 8 times, bacilli of the Morgan group twice, *B. faecalis alkaligenes* quite frequently, *B. belfastiensis* twice, and on two occasions were found atypical fermenters of the *Khartoumensis giunai* group (which is probably allied to the paratyphoid group). Many of the above are recognised as causing enteric, especially in tropical countries.

(2) In a case of suspected enteric with miscarriage a very interesting organism was obtained, which produced abortion in a guinea pig; serological tests so far point to its being a variety of *B. abortivo-equinus*, which produced contagious abortion in mares and other animals. If so, it is, I think, the first recorded case of human infection. A note of the subject is being published.

(3) In obscure cases of suspected septicæmia or toxæmia the following were obtained:—*Hæmolytic B. coli*, late fermenting *B. coli*, *hæmolytic streptococci*, *B. pyogenes fætidus*, Friedlander, *Fæcalis alkaligenes*, *Alkaligenes recti*, *Pyocyaneus*, *Tetragenus*, ordinary *Proteus*, and a very interesting “atypical fermenter,” which agglutinated strongly with *Paratyphoid B.* and less strongly with typhoid and flexner, the patient apparently being a carrier.

Typhus and Pseudo-Typhus.—Five Weil Felix tests were made with negative results.

Bacillary Dysentery.—The following organisms were obtained:—True dysentery bacilli (chiefly flexner, with a few shiga) on 10 occasions; in 4 cases *B. fæcalis alkaligenes* was present, sometimes in combination with flexner and agglutinating with the patient’s serum; bacilli of the meta-dysentery group (*Sonne*, *Dispar*, *Ceylonensis*, etc.) were found 7 times; Morgan’s bacillus 3 times; *B. ambiguus* once; *Proteus* twice; atypical fermenters of the *Khartoumensis giunai* group 3 times; *Hæmolytic B. coli* once, and in a few cases there was only a marked increase of *Enterococci*. Serological and inoculation tests are being made in the case of several of the above organisms.

Amæbic Dysentery.—In addition to the ordinary routine test, a large number of special examinations were made for both amæbic infection and other protozoa in stools. Over 500 examinations were made, either microscopical or by an improved culture method, with the following results:—*E. histolytica* (of amæbic dysentery) 20 times and *Giardia* (probably pathogenic) 11 times. Other protozoa, probably non-pathogenic, were:—*E. coli* 42 times, *Endolimax* 25, *Dientamæba* 1, *Iodomæba* 11, *Chilomastix* 14, *Trichomonas* 7 and *Copramonas* 1. *Blastocystis* (a vegetable organism probably) was very common, especially in unhealthy stools.

Pneumonia, Influenza, etc.—In the absence of epidemics few specimens are sent, as these diseases are usually diagnosed by other means. Our vaccines made from the organisms in the sputum commonly include the *Pneumococcus* and influenza bacillus. Twenty cases of lobar pneumonia, 9 of broncho-pneumonia and 3 of septic pneumonia were found by *post-mortem* examination.

Cerebro-spinal Fever.—74 tests gave 28 positive results. Most of the negative results were in contacts or possible carriers.

Tuberculosis.—249 tests, chiefly of sputum, gave 41 positives. There were 27 in 1929.

Leprosy.—45 tests of diseased skin or nasal swabs gave 4 positives.

Diphtheria.—296 tests, 48 positives and 3 doubtful; many of these tests were repeats on the same cases until free of infection. Virulence tests were done occasionally to confirm the diagnosis. Hoffman’s bacillus was found twice.

Vincent’s Organisms.—These were found 9 times in throat swabs, twice in bronchial spirochætosis and once in an ulcer. These ulcers in the tropics are commonly due to Vincent’s organisms.

Scarlet Fever.—12 negative tests of throat swabs.

Venereal Diseases.—

(1) Syphilis.—683 tests, mostly Wassermann’s, gave 155 positives and 34 doubtful reactions; in 1929 there were the same number of positives. We do the Wassermann reaction because it is generally preferred, but I have found the Sigma test very reliable, while it gives fewer doubtful results.

(2) Gonorrhœa.—247 tests, 135 positives. Many of these are merely re-tests of the same patient until cured.

Worm Diseases.—Urinary bilharzia was found 78 times in 325 routine tests. Roughly 700 examinations of stools were made during the year, giving the following results (chiefly among natives):—(1) Intestinal bilharzia was found 37 times, most of them *S. mansoni*; a few showed terminal spined eggs. (2) Hook worm was found 217 times, most of them *Ankylostoma* or *Necator*, a few *Ternidens*. (3) Other worms found were *Hymenolepis* 5, *Strongyloides* 11, *Oxyuris* 1, *Heterodera* 1, *Ascaris* 4, tape worm 14, *Trichuris* 1.

Miscellaneous Diseases.—Trypanosomiasis, 1 positive (in brain) in 16 tests; anthrax, 3 negative; tetanus, 1 negative; tick fever, 1 positive in 9 tests; ringworm, 1 positive in 9 tests.

Pathology.—1,677 microscopical examinations of urine, blood, stools, cerebro-spinal and other body fluids were made. 117 sections of tumours, 5 museum preparations and 121 *post-mortem* dissections were made.

Chemical Examinations.—1,016 tests and quantitative estimations were carried out on urine, blood and other body fluids.

Water, Milk, Food, etc.—Salisbury municipal private water supplies were examined 24 times, Avondale supplies 6 times (4 in connection with the amalgamation scheme), Hatfield School 1, Rodia Factory reservoir 1, Ruzawi School 2, Domboshawa 1, Hunyani Camp 2, Chisipite School 1, Fort Victoria and Umtali 2 and Bulawayo 5 times. Antiseptic co-efficients are determined every year, for Tender Board purposes, on the samples submitted.

Medico-Legal, etc.—17 examinations of suspected stains, etc., were made. Most of these tests are now to be carried out by the Government Analyst. Some blood grouping tests were made in a case of doubted parentage, and others were made for the purpose of obtaining donors in cases of transfusion of blood.

III. Government Analyst.

During the year 338 samples were examined by the Government Analyst, as compared with 263 the previous year. These figures give no real idea of the work done, as composite specimens are entered as one sample; thus a test meal entered as one sample may comprise 17 specimens and requires 85 separate tests.

Remarks.—

(1) Bio-chemical.—Samples increased from 52 in 1929 to 130 in 1930; the value of these tests in modern diagnosis and treatment is recognised more and more every year. Sixty-seven samples of blood were examined for non-protein nitrogen, sugar and urea; 6 of cerebro-spinal fluid for sugar and globulin; 2 of gastric juice; 21 test meals; 18 of urine for urea, diastase, chlorine and copper; 3 urinary calculi; and 3 stools for fat estimation.

(2) Toxicological.—The value of this work in elucidating cases of suspected murder, suicide, etc., needs no emphasis; 68 samples were examined in connection with 24 cases (mostly natives). In one case a European woman was convicted of murder. The Government Analyst stresses the importance of care in storing easily obtained poisons such as arsenic, cyanide and strychnine, as the native criminal has a definite tendency to employ them.

(3) Blood and Seminal Stains.—On a negative or positive result the verdict in a criminal case may depend entirely; 21 samples were submitted. In one case a serological test for human blood supported the suspect's statement that he had only killed a chicken.

(4) Milks.—Eighteen samples were examined, and the results showed a distinct improvement in quality over previous years. More samples should

be examined for the sake of proper control. To facilitate sending specimens from distant towns a simplified sampling procedure has been evolved.

✓ (5) Waters.—Thirty-one samples were examined, and, where necessary, advice regarding appropriate methods of treatment was given.

(6) Hop Beers.—This term covers miscellaneous brews, some of which contain 9 per cent. proof spirit, which have been prepared to evade the liquor laws. The results of 35 tests led to six convictions, in which fines ranging from £5 to £200 were enforced. An improved method for sending samples from a distance was adopted.

(7) Cheeses.—These were examined in connection with Customs control of imported cheeses.

(8) Miscellaneous.—These included preserved meats, a medicated alcoholic liquor, a sample of supposed gunpowder, a native distilled spirit called “Kachasu” which was being carried to one of the mines and which contained 41 per cent. of proof spirit, thatch from huts which contained a poison (antimony), a commercial effluent, and tests of an alcoholic fluid given by a European to a native which resulted in a fine of £25, samples of drugs from the Customs, etc.

(9) Lectures.—Five lectures were given to batches of police recruits, etc., on the properties of poisons and the investigation of cases of poisoning, assault, murder, etc., and these lectures have had good results.

IV. Financial.

PASTEUR INSTITUTE AND ROUTINE DEPARTMENT.

The amounts given below represent the value of the work done, based on the Laboratory tariff.

	1929.			1930.		
	Government.			Private.		
	£	s.	d.	£	s.	d.
(a) Pasteur Institute	...			26	5	0
(b) Routine ...	3,227	7	6	521	16	6
Totals ...	3,227	7	6	548	1	6

L. J. JOHN ORPEN,
Director.

(2) PRELIMINARY REPORT OF RESEARCH FELLOW ON HELMINTHOLOGICAL INVESTIGATIONS IN SOUTHERN RHODESIA.

A series of helminthological investigations were begun towards the end of April, 1930, and the work to date has been carried out along three main lines.

1. A helminthological survey has been made of (a) the native races in the Colony and (b) the European inhabitants.
2. Helminthic parasites have been collected from a large series of wild and domestic animals.
3. A certain amount of experimental work has been carried out.

The Helminthological Survey.

(1) *Native Races*.—A routine examination of urine, faeces and blood of all natives admitted to the Salisbury native hospital was instituted at the beginning of the investigation, and the examinations have been continued throughout the year. The original locality of each native examined for evidence of helminthic infestation has been carefully ascertained, and effectively illustrates the mixed nature of the native population of the Colony. Consequently the natives admitted to the Salisbury hospital in the course of the present year may be regarded as representing a cross section of the native population of Southern Rhodesia, and from a routine examination of such natives a relatively accurate conception can be obtained of the range of the human parasitic helminths in the country.

In order to arrive at some conclusion regarding the relative incidence, etc., of the various metazoal parasites, a series of trips were made into several native reserves. The districts visited so far have been the Zambesi Valley, in relation to the Sebungwe area, Darwin district, Umtali, Melsetter, Chibi and Wankie. In each of the districts mentioned a representative number of kraals were visited and an examination made of the urine, faeces and blood of the inhabitants. Due attention was paid to the sanitary conditions prevailing in the kraals, and in each district careful search was made for the intermediate molluscan hosts of the mammalian schistosomes.

In order to ascertain the extent to which natives entering Southern Rhodesia from the north were parasitised, a number of these natives were examined at Mount Darwin and Rusambo.

(2) *Europeans*.—The incidence of parasitic helminths in Europeans is being determined mainly from routine examinations of urine and faeces of patients admitted to the Salisbury hospital.

(3) *Collection and Examination of Parasitic Helminths from Wild and Domestic Animals*.—While carrying out investigations in the various districts, every opportunity was taken to collect parasitic helminths from representative examples of the animal and bird life encountered.

One object of this collection is the demonstration of possible reservoir hosts for human parasitic worms.

Experimental Work.

A certain amount of time has been given to the study of a recently described schistosome in sheep (*S. mattheei*) in its relation to human disease. Certain conclusive results have been obtained which will be published in due course.

Some attention has been given also to a study of the life cycle and pathological effects of *Ternidens deminutus*, in view of the relative frequency of its occurrence as a human parasite in certain parts of Southern Rhodesia.

An attempt is being made to solve the life cycle of a relatively rare human parasite—*Physaloptera caucasica*—which has been met with in the Rhodesian native and is a common parasite of the monkeys and baboons in the Colony.

A detailed report on the results of these investigations will be ready by the end of 1931, consequently the present report serves only to indicate the lines along which the work was carried out.

It may be said, however, that the helminthic infestation of primary importance in the Colony is that due to the schistosome or bilharzia worm, particularly that species of schistosome whose definite site is the urinary bladder.

Hookworm infestations come next in importance, but it is probable that the deleterious effect on the host of such infestations is the result of some interference with the normal mechanism of blood production and immunity response.

W. K. BLACKIE,
Research Fellow.

TABLE I.

CLASSIFICATION OF DEATHS (EUROPEANS), 1930.

Deaths classified according to the International List of Causes of Death.

I.—GENERAL DISEASES.

Classifi- cation No.	Disease.	No. of Deaths.
1	Enteric fever	6
2	Typhus fever	1
4	Mediterranean fever	1
5	Malaria	14
9	Whooping cough	2
10	Diphtheria	3
11	Influenza	11
16	Dysentery	8
21	Erysipelas	1
25.3	Blackwater fever	14
30	Mycoses	1
31	Tuberculosis of the respiratory system	15
34	Tuberculosis of the vertebral column	1
36	Tuberculosis of other organs	1
37	Disseminated tuberculosis	2
38	Syphilis	1
41	Purulent infection, septicæmia	1

II.—GENERAL DISEASES NOT INCLUDED ABOVE.

43	Cancer of the buccal cavity	3
44	Cancer of the pharynx, œsophagus, stomach, liver and annexa	20
45	Cancer of the peritoneum, intestines and rectum	7
46	Cancer of the female genital organs	2
47	Cancer of the breast	2
48	Cancer of the skin	2
49	Cancer of other or unspecified organs	16
50	Tumours not returned as malignant (brain and female genital organs excepted)	3
51	Rheumatic fever	1
52	Chronic rheumatism, osteo-arthritis, gout	2
57	Diabetes	1
64	Diseases of the spleen	1
65	Leukæmia, lymphadenoma	3
66	Alcoholism (acute or chronic)	4

III.—DISEASES OF THE NERVOUS SYSTEM AND SENSE ORGANS.

71	Meningitis	4
73	Other diseases of the spinal cord	3
74	Cerebral hæmorrhage, apoplexy, etc.	7
75	Paralysis of unstated origin	2
76	General paralysis of the insane	1
77	Other forms of insanity	3
78	Epilepsy	2
81	Chorea	1
86	Diseases of the ear and of the mastoid sinus	2

IV.—DISEASES OF THE CIRCULATORY SYSTEM.

88	Acute endocarditis and myocarditis	4
89	Angina pectoris	4
90	Other diseases of the heart	31
91	Diseases of the arteries	5
92	Embolism and thrombosis (not cerebral)	2
93	Diseases of the veins (varix, hæmorrhoids, phlebitis, etc.)	3
96	Other diseases of the circulatory system	3

V.—DISEASES OF THE RESPIRATORY SYSTEM.

97	Diseases of the nasal fossæ and annexa	1
98	Diseases of the larynx	2
99	Bronchitis	10
100	Broncho-pneumonia	11
101	Pneumonia (lobar, or not otherwise defined)	29
103	Congestion and hæmorrhagic infarct of lung	1
105	Asthma	1
106	Pulmonary emphysema	1
107	Other diseases of the respiratory system	5

VI.—DISEASES OF THE DIGESTIVE SYSTEM.

Classifi- cation No.	Disease.	No. of Deaths.
109	Disease of the pharynx and tonsils	2
111	Ulcer of the stomach or duodenum	2
112	Other diseases of the stomach	2
113 & 114	Diarrhœa and enteritis	16
116	Diseases due to other intestinal parasites	1
117	Appendicitis	7
118	Hernia, intestinal obstruction	4
120	Acute yellow atrophy of the liver	1
122	Cirrhosis of the liver	3
123	Biliary calculi	1
124	Other diseases of the liver	3
125	Diseases of the pancreas	1
126	Peritonitis without stated cause	2

VII.—NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.

128	Acute nephritis (including unspecified under 10 years of age) ...	3
129	Chronic nephritis (including unspecified over 10 years of age) ...	5
131	Other diseases of the kidney and annexa	2
132	Calculi of the urinary passages	1
133	Diseases of the bladder	1
138	Salpingitis and pelvic abscess in females	3
139	Tumours of the uterus not returned as malignant	1
140	Non-puerperal uterine hæmorrhage	1

VIII.—THE PUERPERAL STATE.

143	Accidents of pregnancy	2
144	Puerperal hæmorrhage	1
146	Puerperal sepsis	2
148	Puerperal albuminuria and convulsions	2

IX.—DISEASES OF THE SKIN AND CELLULAR TISSUE.

152	Carbuncle, boil	1
153	Cellulitis, acute abscess	1

XI.—CONGENITAL MALFORMATIONS.

159	Congenital malformations	5
-----	---------------------------------	---

XII.—DISEASES OF EARLY INFANCY.

160	Congenital debility, sclerema and icterus	4
161	Premature birth, injury at birth	12
162	Other diseases peculiar to early infancy	2

XIII.—OLD AGE.

164	Old age	10
-----	----------------	----

XIV.—EXTERNAL CAUSES.

165 & 166	Suicide by solid or liquid poisons and corrosive substances ...	3
168	Suicide by hanging or strangulation	1
170	Suicide by firearms	12
177	Other acute accidental poisoning (not by gas)	1
178	Conflagration	1
179	Accidental burns (conflagration excepted)	1
180	Accidental mechanical suffocation	1
183	Accidental injury by firearms	3
185	Accidental injury by fall	1
186	Accidental injury in mining and quarrying	3
188	Accidental injury by other forms of crushing (road vehicles, on railways, etc.)	11
197	Homicide by firearms	1
199	Homicide by other means	3
201	Fracture (cause not specified)	1
203	Violent deaths of unstated nature (i.e., accidental, suicidal, etc.) and cause	1

XV.—ILL-DEFINED DISEASES.

204	Sudden death	1
205	Cause of death unstated or ill-defined	6
Total		443

TABLE II.

Table giving the number of beds in each Government Hospital, the daily average number of patients treated, the revenue and expenditure of each, and the approximate charge on public funds for each patient in hospital during 1930.

Name of hospital.	No. of beds.		Daily average of patients treated.			No. of nursing staff.	No. of native staff.	Gross expenditure.		Revenue.		Deficit of revenue over expenditure.		Approximate charge on public funds for each patient treated.
	White.	Coloured and native.	White.	Coloured and native.	Total.			£	s. d.	£	s. d.	£	s. d.	
Salisbury ...	80	117	79.0	90.9	169.9	60	72	28,441	12 4	10,776	17 10	17,664	14 6	£ 4 13 11
Bulawayo ...	100	86	71.0	119.0	190.0	54	72	27,372	15 9	11,351	3 8	16,021	12 1	4 5 3
Umtali ...	38	46	16.3	25.9	42.2	10	22	6,927	8 0	2,449	13 11	4,477	14 1	4 1 1
Gwelo ...	30	53	11.8	43.1	54.9	8	17	5,917	5 9	1,625	13 5	4,291	12 4	3 15 0
Fort Victoria ...	14	27	4.4	21.9	26.3	4	14	2,436	19 2	450	12 9	1,986	6 5	4 16 11
Gwanda ...	8	26	1.9	17.8	19.7	3	8	1,433	11 2	225	13 5	1,207	17 9	3 6 11
Enkeldoorn ...	13	7	3.9	7.2	11.1	3	8	1,677	1 1	124	12 2	1,552	8 11	6 7 3
Gatooma ...	23	96	8.4	131.3	139.7	7	23	5,704	11 8	1,633	18 0	4,070	13 8	2 13 3
Shamva ...	18	22	2.1	23.7	25.8	3	12	1,933	11 0	263	5 11	1,670	5 1	3 12 2
Sinoia ...	9	23	6.3	23.0	29.3	4	12	2,538	2 4	574	8 8	1,963	13 8	3 1 7
Belingwe ...	8	14	0.3	3.5	3.8	1	3	219	6 11	36	14 9	182	12 2	9 12 3
Ingutsheni Mental Hospital	72	270	55.6	215.2	270.8	14	23	8,082	1 0	1,396	18 6	6,685	2 6	18 12 5

TABLE III.

Return of Government and pauper patients treated in Government hospitals during 1930.

Name of hospital.	Number of free patients.			Total number of units treated.			Cost of maintenance.
	White.	Native and coloured.	Total.	White.	Native and coloured.	Total.	
Salisbury ...	323	941	1,264	7,352	21,021	28,373	£ s. d. 13,002 5 10
Bulawayo ...	478	1,870	2,348	7,587	29,235	36,822	14,115 3 0
Umtali ...	55	425	480	956	7,586	8,542	3,843 18 0
Gwelo ...	103	456	559	1,517	11,041	12,558	3,715 1 6
Fort Victoria ...	48	355	403	430	6,242	6,672	1,695 16 0
Gwanda ...	15	250	265	352	5,498	5,850	1,145 12 6
Enkeldoorn ...	71	173	244	792	2,254	3,046	1,269 3 4
Gatooma ...	34	1,037	1,071	482	42,178	42,660	4,799 0 0
Shamva ...	25	475	500	205	6,932	7,137	1,457 2 9
Sinoia ...	23	227	250	437	4,783	5,220	1,261 10 0
Belingwe ...	1	14	15	25	276	301	189 7 7
Ingutsheni Mental Hospital ...	45	196	241	16,130	71,389	87,519	7,293 5 0
Totals ...	1,221	6,419	7,640	36,265	208,435	244,700	53,787 5 6

TABLE IV.

Statement in regard to Patients treated and Finance at Government Hospitals during 1930.

Name of hospital.	Patients maintained			Average number of days in hospital per patient		Total expenditure	Earnings	Revenue received	Revenue per cent. of total expenditure	Average cost to Government per patient		Total amount outstanding	
	European	Native	Total	European	Native							At end of 1929	At end of 1930
Salisbury ...	2,050	1,713	3,763	14.06	19.38	£ 28,442	£ 14,421	£ 10,777	37.9	£ s. d. 4 13 11	£ 8,714	8,714	8,743
Bulawayo ...	1,594	2,164	3,758	16.08	20.05	27,373	14,395	11,351	41.5	4 5 2	8,418	8,418	6,151
Umtali ...	487	617	1,104	12.20	15.31	6,927	2,814	2,450	35.4	4 1 1	824	824	603
Gwelo ...	405	739	1,144	10.68	21.28	5,917	1,816	1,626	27.5	3 15 0	802	802	571
Fort Victoria ...	164	246	410	9.71	32.58	2,437	704	451	18.5	4 16 11	670	670	692
Gwanda ...	50	311	361	13.92	20.87	1,434	278	226	15.8	3 6 11	112	112	75
Enkeldoorn ...	111	133	244	12.72	19.77	1,677	218	125	7.5	6 7 3	116	116	170
Gatooma ...	302	1,228	1,530	10.14	39.03	5,705	2,031	1,634	28.6	2 13 3	908	908	880
Shamva ...	76	387	463	9.89	22.36	1,934	436	263	13.6	3 12 2	222	222	303
Sinoia ...	205	433	638	11.18	19.16	2,538	1,168	574	22.6	3 1 7	752	752	1,327
Belingwe ...	2	17	19	14.50	18.76	219	8	37	16.9	9 12 3	21	21	8
Ingutsheni Mental ...	76	283	359	266.90	277.50	8,082	1,616	1,397*	17.3	18 12 5	1,051	1,051	1,297
Totals ...	5,522	8,271	13,793	17.18	31.75	£92,685	£39,905	£30,911	33.4	£5 14 10	£22,610	£22,610	£20,820

* Includes £84 received from sale of farm and garden produce.

